METHUEN'S HANDBOOKS OF ARCHAEOLOGY

THE ARCHAEOLOGY OF CRETE

AN INTRODUCTION

METHUEN'S
HANDBOOKS OF ARCHAEOLOGY

BROOKE, G. C.	English Coins
COOK, R. M.	Greek Painted Pottery
GUTHRIE, W. K.	Orpheus and Greek Religion
HIGGINS, R. A.	Greek and Roman Jewellery
MATTINGLY, Harold	Roman Coins
QUIGGIN, A. H.	A Survey of Primitive Money
SELTMAN, Charles	Greek Coins
In Preparation	
STRONG, D. E.	Greek and Roman Gold and Silver Plate

THE ARCHAEOLOGY OF CRETE

An Introduction

BY

J. D. S. PENDLEBURY

M.A., F.S.A.

FORMERLY CURATOR AT KNOSSOS
FORMERLY DIRECTOR OF EXCAVATIONS
AT TELL EL-AMARNA

WITH 50 PLATES
53 TEXT ILLUSTRATIONS
AND 24 MAPS

METHUEN & CO LTD
11 New Fetter Lane · London EC4

First published in Great Britain 1939

Printed in the United States of America

TO

MY WIFE

Contents

Plates

AT THE END OF THE VOLUME

Unless otherwise stated these plates are from the Author's photographs

Illustrations in the Text

* Drawn by Miss Money-Coutts.

† Drawn by Mr. J. T. Pinion.

Maps

Drawn by Mr. W. H. Bromage

Abbreviations

A.J.A.	*American Journal of Archaeology.*
A.H.N.E.	*The Ancient History of the Near East.* H. R. Hall. 4th edition.
Annuario.	*Annuario della R. Scuola Archaeologica di Atena.*
Arch.	*Archaeologia. Miscellaneous Tracts relating to Antiquity.*
Ἀρχ. Δελτ.	*Ἀρχαιολογικὸν Δελτίον.*
Arch. Anz.	*Archäologischer Anzeiger.*
Ath. Mitt.	*Athenische Mittheilungen.*
Boll. d'Art.	*Bolletino d'Arte.*
B.M. Cat.	*British Museum Catalogue*
B.S.A.	*Annual of the British School at Athens.*
,, *Sup.*	*Supplementary Papers*, 1, 1923. *Unpublished objects from Palaikastro*, I. R. M. Dawkins and others.
B.C.H.	*Bulletin de Correspondance Hellénique.*
C.A.H.	*Cambridge Ancient History.*
C.G.B.A.	*The Civilization of Greece in the Bronze Age.* H. R. Hall.
C.I.G.	*Corpus Inscriptionum Graecarum.*
C. of A.	*The City of Akhenaten.* Two volumes. Egypt Exploration Society.
C.O.I.	*Communications of the Oriental Institute of Chicago.*
Ἐφ. Ἀρχ.	*Ἐφημερὶς Ἀρχαιολογική.*
Festos	*Il Palazzo Minoico di Festos.* L. Pernier.
Fimmen.	*Die Kretisch-Mykenische Kultur.* D. Fimmen.
Head.	*Historia Nummorum.* B. V. Head. 2nd ed., 1911.
J.E.A.	*Journal of Egyptian Archaeology.*
J.H.S.	*Journal of Hellenic Studies.*
Liv. Ann.	*Annals of Archaeology and Anthropology in the University of Liverpool.*
Mallia.	*Fouilles de Mallia.*
,, *Ecrit.*	*Ecritures Minoennes.*
Mon. Ac. Linc.	*Monumenti dell' Academia Lincei.*
Mon. Ant.	*Monumenti Antichi.*
Mus. It. Ant. Class.	*Museo Italiano di Antichità Classica.*
Pachyammos.	*The Cemetery of Pachyammos.* R. B. Seager. *University of Pennsylvania, the Museum. Anthropological Publications*, VII, 1.
P. of M.	*The Palace of Minos.* Sir Arthur Evans. Four volumes and Index.

Pashley.	*Travels in Crete.* R. Pashley. 1837.
Πρακτικά.	*Πρακτικὰ τῆς Ἀρχαιολογικῆς Ἑταιρείας.*
P.T.K.	*The Prehistoric Tombs of Knossos.* A. J. Evans, from *Archaeologia*, LIX.
Pseira.	*Excavations on the Island of Pseira.* R. B. Seager. *University of Pennsylvania, the Museum. Anthropological Publications*, III, 1.
Rend. Linc.	*Rendiconti dell' Academia Lincei.*
Rev. Arch.	*Revue Archaeologique.*
Rev. Et. Anc.	*Revue des Études Anciennes.*
Sphoungaras.	*Excavations in Eastern Crete, Sphoungaras.* E. H. Hall. *University of Pennsylvania, the Museum. Anthropological Publications*, III, 2.
Spratt.	*Travels and Researches in Crete.* T. A. B. Spratt.
Studies.	*Studies in Early Pottery of the Near East.* H. Frankfort. Royal Anthropological Institute, *Occasional Papers*, 6 and 8.
Svoronos.	*Numismatique de la Crète Ancienne.* J. N. Svoronos. 1890.
T.D.A.	*The Tomb of the Double Axes and Associated Group, etc.* A. J. Evans, from *Archaeologia.* LXV.
Trans. Penn. Univ.	*Transactions of the Department of Archaeology, Free Museum of Science and Art, University of Pennsylvania.*
Τυλ. Μιν.	*Τύλισσος Μινωϊκή.*, from *Ἐφ. Ἀρχ.* 1912.
T.V.M.	*Tylissos, Villas Minoennes.* J. Hazzidakis.
V.T.M.	*The Vaulted Tombs of Mesará.* S. Xanthudides.
Vrokastro.	*Excavations in Eastern Crete, Vrokastro.* E. H. Hall. *University of Pennsylvania, the Museum. Anthropological Publications*, III, 3.

Introduction

I HAVE tried in this book to give some account of the culture of Crete from the earliest times down to the Roman Age. While for the prehistoric period the ground is covered with an infinitely greater wealth of detail in Sir Arthur Evans' *Palace of Minos* yet that work is in the mere nature of the case primarily concerned with Knossos, and where on so vast a site excavation and publication have gone hand in hand it has been impossible for the author to avoid returning to an earlier period when, in the interim between two volumes, fresh evidence has come to light. To treat the subject in historical order is essential. Glotz's method in his *Aegean Civilization* is to take each topic, architecture, pottery, &c., separately and to trace its development right through without reference to anything else. This treatment makes it impossible to obtain a clear view of the culture of any particular period, for we must be able to assess the historical value of such facts as an improvement in architecture coupled with a decline in pottery in the same epoch.

Since this book is concerned with the material aspects of Cretan archaeology, such general topics as the Minoan language and religion are rather summarily treated in a separate chapter which seeks to sum up our knowledge of the civilization of the Bronze Age.

For post-Minoan Crete we are dependent on specialized studies and excavation reports, and it would seem time to try to summarize the results. Since Crete at this period shares the general Hellenic culture, it will be sufficient to point out her local peculiarities.

With regard to the question of the nomenclature to be adopted for the various prehistoric periods there is no question that in the present state of our knowledge it would be absurd to confuse matters by altering the arrangement, originated by Sir Arthur Evans, of nine periods, Early, Middle and Late

Minoan (E.M., M.M. and L.M.) I, II and III[1]. Admittedly recent research seems to show that both M.M.II and L.M.II were practically confined to Knossos and Phaistos and that it might be better to call M.M.I*b* and L.M.I*b* M.M.II and L.M.II respectively, but that would merely mean that a mass of important literature already written would be thrown into confusion, and after all the names are mere labels and of no value in themselves. One day perhaps we shall be able to talk in terms of dynasties and regnal years, but until then the present system cannot be bettered. It must, however, be allowed to be elastic. Because L.M.I*a* begins at Knossos at a particular date, that is not to say that provincial towns, such as the Kastellos above Tzermiadha in Lasithi, discarded all their M.M.III*b* vessels on the same day. So too, while we admit that all over the Near East the Bronze Age falls into three main periods, we must guard against insisting that the Helladic and Cycladic Periods must be exactly parallel to the Minoan. We must allow the possibility that the Neolithic Period in Crete overlaps the Proto-dynastic Period in Egypt and that Early Helladic may overlap into Middle Minoan. Meanwhile, until we have got something better to put in its place the terminology which has acted so well for so long must be kept, and the more subdivisions we can make in it the better.

I have unrepentantly used the term Late Helladic I, II and III for Mycenaean I, II and III. L.H. is more convenient than Myc, it does not attempt to ram the name of a city down the throat of a country, and, as we shall see, we must have some distinction between Crete and the Mainland, so L.M. will not do.[2] As I say these names are only labels they have no intrinsic magic of their own.

[1] Certainly there would be nothing to be gained by adopting the suggestions of M. Franchet in his introduction to Hazzidakis' *Tylissos Minoenne*. He, with insufficient knowledge, acquired on a flying visit to Crete, based an inferior system of chronology for the island apparently on that of prehistoric provincial France. Of his criticisms of the work of every one who had been to Crete before, the less said the better. Nor is Åberg's sweeping division into Prepalatial, Kamarais and Late Minoan anything but a retrogression. See note at the end of the introduction. As Frankfort, *Studies*, II, 125, n., says, none of the alternative schemes alters the sequence of the remains in any way and therefore they do not add to our insight.

[2] We can talk of XVIIIth Dynasty work without implying that the Pharaohs of that Dynasty did it themselves. So too all we imply by L.H. work is work done in Hellas during the Late Bronze Age.

Orthography and the transcription of modern Greek names is a problem. I confess to inconsistency. Ancient names I have transcribed direct in the ordinary way. With modern names it is more difficult. B is pronounced *V*. *Γ* is pronounced right at the back of the throat, like the Arabic *ghain*, so that on the mainland it becomes *y* in front of the thinner vowels. In Crete, however, it is then thickened into a French *j*. *Δ* is pronounced like *th* in then. K in Crete behaves like an Italian *c* and is pronounced like our *ch* in front of the same vowels. X is a guttural *kh*, but in Crete becomes the Italian *sc* in front of the same vowels. The true soft consonants *B*, *G* and *D* are only obtained by placing a nasal in front of the corresponding hard consonants. Thus *μπ*, *γκ* and *ντ*. This nasal is actually heard in many parts of Greece even when it begins a word since the sounds cannot be pronounced without its help, but in Crete—and not only at the beginning of words—there is an adenoidal tendency to drop the nasal sound. Thus you hear Adones for Antones. *Αυ* and *ευ* are pronounced *af* and *ef* in front of a hard consonant, *av* and *ev* in front of a soft one or a vowel. The names then will be transcribed as near to this pronunciation as possible, *β* as *v*, *γ* as *g* (a compromise), *δ* as *dh*, *μπ*, *γκ* and *ντ* as *b*, *g* and *d* at the beginning of a word and as they are written in the middle, except in the case of a few foreign names like Mirabello and Frankokastelli ; *αυ* and *ευ* as they are pronounced. *ει*, *ι* and *η* are very nearly interchangeable and I have used the form most commonly met with in the island even where, philologically, it is incorrect, as in Psiloriti and Elaphonisi. The rough breathing is invariably omitted in modern Greek.

But in a few cases a Latinized or other form is universally recognized and it would be pedantry to write Krete or Xanthoudhidhes. Juktas, also, is by now almost always written for Giouktas or Gioukhtas.

With regard to Egyptian names I confess that to me forms like Tuthmosis, Amenophis and Cheops are as bad as the practice of calling Zeus Jupiter. Thothmes, Amenhotep and Khufu are no farther from the contemporary pronunciations and have seen good service. To call Senusert Sesostris is worse, for Sesostris to the Greeks was the conqueror, the hero of the exploits of Rameses II and others.

I have tried hard in the following pages to keep fact and theory apart. A theory, honestly stated as such by its original propounder, is too apt to be used as a fact by his successors

until it passes into a basis for fresh theories. Petrie's (in those days) justifiable theory that certain vases found by him at Abydos were of Aegean origin has passed, in archaeological quotation, through the ' Petrie's suggestion that . . .' stage to ' the Early Minoan pottery found by Petrie '. Even now the fallacy lingers on in spite of Frankfort's authoritative denial.[1]

Foreign connexions in particular present problems of especial difficulty. The positive dating of the Bronze Age Periods in the Aegean depends entirely on foreign contacts—mainly with Egypt.[2] Sometimes this is simple, as for example when objects bearing the name of Amenhotep III and Ty are found in L.H.III deposits at Mycenae and L.H.III vases are found in the city of their successor, Akhenaten, in Egypt, or when a M.M.II vase is found in a XIIth Dynasty grave and a XIIth Dynasty statue in a M.M.II deposit. But in the early periods we have to rely on the evidence of vases of hard stone found in Neolithic or Early Minoan strata or unstratified. These vases may be, and certainly were, kept for years, since they are practically indestructible and always useful. Furthermore, we have no proof as to when they were imported into Crete, since they were equally prized in Egypt. If we find a middle predynastic vase still in use at Tell el-Amarna in the XVIIIth Dynasty and in the Royal Tomb at the same place a diorite bowl of Khafra of the IVth Dynasty, it is evidently very dangerous to try and date an E.M. stratum by a protodynastic vase found in it.

Local imitations of foreign objects are safer since people do not go on copying something which no longer exists.[3] The clay vase from Agia Triadha, which imitates in shape the baggy alabaster vases of mid-XVIIIth Dynasty and in painted decoration the bands in the stone itself, is better evidence that L.M.I is to be dated to the sixteenth and early fifteenth centuries than are the porphyry vessels that E.M.I is contemporary with the Late Predynastic Period. But even here we must be careful. At first glance the ivory figurines from E.M. deposits in the Messara are obvious imitations, if not imports, from Upper Egypt of the Middle Predynastic Period.

[1] *Studies*, I, 105 ff.

[2] In the following pages the accepted chronology is used, i.e. Dynasty I, *c.* 3300, but see note to chronological table on p. 300.

[3] This seems to me to disprove Frankfort's theory (*Studies*, II, 140 ff.) that ' Minyan ' ware in Greece is an imitation of the Trojan silver vases which were no longer available.

It is only on the roundabout assumption that they are actually traceable to a backward North African branch of the same race as that which made the predynastic examples that they will make sense.

One would imagine that actual pictures of Minoans bringing objects as 'tribute' to Pharaoh would be good enough evidence for those objects being contemporary, and so it is at first. Senmut and User-Amen show such pictures in their tombs at Thebes, and very good portraits they are, both of Minoans and of L.M.I objects; but a generation or less later Rekhmara and Menkheperrasenb also chose to decorate their tombs in the same way and by this time the artists had begun to get certain types for foreigners—one can almost imagine them having wall sheets showing typical men of Crete, Retennu, Naharin, &c. From that it was a short stage to the tomb of Amenemheb, where the artist merely drew 'foreigners' and gave them names at random.

For comparative dating in Crete itself pottery is of course our chief criterion, and the duration of the periods discussed above is determined by changes of style. Naturally everything is based on Knossos, for not only was that the first and most important site to be excavated but also at Knossos alone is the series complete. But, as has been said, we must always be prepared to accept divergencies from the Knossian series, particularly on the smaller sites. The process of disentangling the various styles and assigning each to its period has been a long one, indeed it is not yet finished. Many people seem to think that over the whole site every period was represented by a neat deposit immediately overlying its predecessor and underlying its successor, separated from each by a nice floor level. This is very far from the case. At a site like Knossos, which was continuously inhabited for millennia, older structures become incorporated into new schemes and absolutely pure strata are rare. In some areas a whole period will be missing and must be filled in from elsewhere. Evidence from stratification and from style must go hand in hand. It is fortunate that Knossos was excavated by two men who realized this.[1]

So, also, it must be recognized that the styles and periods often slide almost imperceptibly one into the next. It was slow progress, not the town crier, that ordained the change from E.M.III to M.M.I. We must not expect watertight

[1] See note at the end of the Introduction.

compartments nor that objects other than pottery will necessarily conform. Pottery was chosen and rightly chosen as the criterion because it is by far the most common material. When broken it is useless. It is not removed to be employed for something else and the fragments are practically indestructible.

So much for fact.

As to theory, archaeology, as the late Professor T. E. Peet said, is not an exact science. In the absence of documents which we can read and believe we are bound to progress by means of theories. Any theory is justifiable which agrees with the greatest number of facts known at the time and contradicts neither a vital fact nor human nature and reason. The most reasonable theory, which gives a connected history, should hold the field until a better one is produced or until it is flatly contradicted by some newly discovered fact. Facts like words are by themselves useless. They must be combined as a means to an end. Their duty is at the lowest to provide the basis of a reasonable theory and at the highest to be the skeleton supporting the living flesh of history.

Acknowledgements are due to many. The bibliography at the end gives some of the literature to which I owe a debt. But first of all comes my duty to Sir Arthur Evans, with whom I had the pleasure and honour of working at Knossos for five years and who generously lent me the unpublished diaries of his early travels and permission to use many illustrations. His enthusiasm has been an inspiration and I cannot say how much I owe to him. Hardly less do I owe to the late Dr. Duncan Mackenzie, my predecessor at Knossos and, together with Sir Arthur, the founder of Minoan archaeology. It was my good fortune that I met him in Crete before his retirement. The cordial assistance of the present energetic ephor, Dr. S. Marinatos, has always been of the greatest value. It is good to think that he now has the new museum on which he set his heart. I must thank Dr. Halbherr and Dr. Pernier of the Italian Mission, both of them a great loss as friends and archaeologists, for permission to use much of their material, some of it as yet unpublished. To Humfry Payne, late Director of the British School at Athens, whose tragic death has been such a blow to archaeology, my debt is great. The loss of our companion on many a journey is still unbelievable. Of those whose work appears in this book Miss Money-Coutts drew all the diagrams of patterns and the

seal stones, and Mr. J. T. Pinion the simplified plans. Professors A. B. Cook and A. J. B. Wace have read the manuscript and made many valuable criticisms and suggestions.

Then there is 'Manolaki', Emmanouel Akoumianakes, foreman of Knossos and the most enthusiastic archaeologist in Crete. The 'Old Wolf's' eye for a site is unrivalled and no amount of exhaustion on his part or on that of any one else will prevent him from forcing one to search for remains. The work that he has done for Knossos is known to few and I am glad to have the opportunity of mentioning it.

And last but not least come all those companions of our travels and the hospitable Cretans themselves. A journey is a pure joy, whether accompanied by a vigorous young Kourete of Dikte or by an equally vigorous but more reminiscent elderly Idaean Daktyl, whether one's lodging is with the village schoolmaster, in a monastery, or on the bare hillside with the raggle-taggle gypsies. To have stood on Ida, on Dikte and on Aphendes-Kavousi in the clear shrill wind and to have toiled through the hot little valleys with that unforgettable smell of herbs is an experience the memory of which nothing can ever take away from you.

Ἄμ' πᾶς στὴν Κρήτην, Κρητικέ, χαιρέττε μου τσὴν Κρήτην,
Χαιρέττε ξέ μου τὸ βουνὸ τὸ γέρο Ψηλορίτι.
The Exiled Cretan. A Matinadha of Ida.[1]

---

[1] When you go to Crete, Cretan, greet Crete for me,
Greet from me the mountain, aged Ida.

Note on a Recent Attempt to upset the Accepted Sequence of Periods

ÅBERG IN the fourth volume of his *Bronzezeitliche und Frueisenzeitliche Chronologie* has made a determined effort to prove that there is little true stratification at Knossos, that the accepted stratification has been invented in accordance with an analysis of the styles of pottery and that this analysis is unsound. From an analysis of his own he maintains that the remains can only be divided with certainty into three periods, Pre-palatial (i.e. E.M.I to M.M.I*a*), Kamarais (i.e. M.M.I*b* to M.M.III pre-earthquake), and Late Minoan. He dismisses the Egyptian synchronisms for the earlier periods, which have hitherto been accepted as giving some indication of positive dating, and concludes that within his first two periods the various styles of pottery were contemporary. He has been praised by the reviewer in *J.H.S.*, LIV, for pointing out that primitive communities could exist side by side with the advanced civilization of the great palaces. Since, however, every style of pottery is present at Knossos, the result of his argument seems to be that primitive communities were in existence actually *in* the palaces themselves! However pleasant may be the picture of a Sub-Neolithic servant waiting on a M.M.I lady, the fact remains that Knossos *is* very highly stratified and that a sufficient number of pure strata exist one above the other to disprove Åberg's case, while by no means disallowing the possibility that the provincial towns may lag behind the great centres of civilization to the extent of missing out a period like M.M.II or L.M.II.

It is simpler, however, to give a short summary of the evidence which has led us to believe that the various styles of pottery are in sequence and not contemporary. In every case quoted a pure stratum of the period in question lies immediately above a stratum of the previous period.

NEOLITHIC occurs immediately above virgin soil wherever it is found.

E.M.I, deposit on a floor level in the West Court at Knossos (*B.S.A.*, X, 22).

E.M.II, deposit on a floor level above the preceding (*ibid.*, 20. Cf. *Mochlos*, 42).

E.M.III, deposit on a floor level above the preceding (*ibid.*, 20. Cf. at Vasilike, *Trans. Penn. Univ.*, II, 113, *Gournia*, 50, at Palaikastro, *B.S.A.*, *sup.* 3).

M.M.Ia, at Knossos no floor of this period immediately overlies an E.M.III level, but cf. transitional types in a pure stratum (*B.S.A.*, XXX, 53). At Vasilike a house was built a little way away from the E.M. site (*loc. cit.*). At Palaikastro a well-stratified deposit was found (*loc. cit.*).

M.M.Ib, deposit with a small admixture of M.M.II*a* in the West Court at Knossos (*P. of M.*, IV, 97). A pure stratum near by not carried lower (*ibid.*, I, 186).

M.M.IIa, stratum overlying M.M.I*b* stratum in the Royal Pottery Stores (L., III, [illegible] in the reference museum; in the North-East Magazines K., I, 2, 4, 6, 7, 8; West Court, B., I, 7).

M.M.IIb, deposit stratified by layers of wood ash above the Royal Pottery Stores (*P. of M.*, I, 240). Åberg's contention that it is all one deposit implies a discrimination of style not usually displayed by catastrophes.

M.M.IIIa, deposit above the Loomweight Area (*ibid.*, fig. 187*b*).

M.M.IIIb, deposit immediately above the preceding (*loc. cit.*) and in the Room of the Stone Pier (*ibid.*, 366).

The above takes no account of the changes in building construction which are associated with the various periods, nor of the development in such arts as seal-engraving and writing which are conclusive.

Chapter I

THE ISLAND

(*See Map 2*)

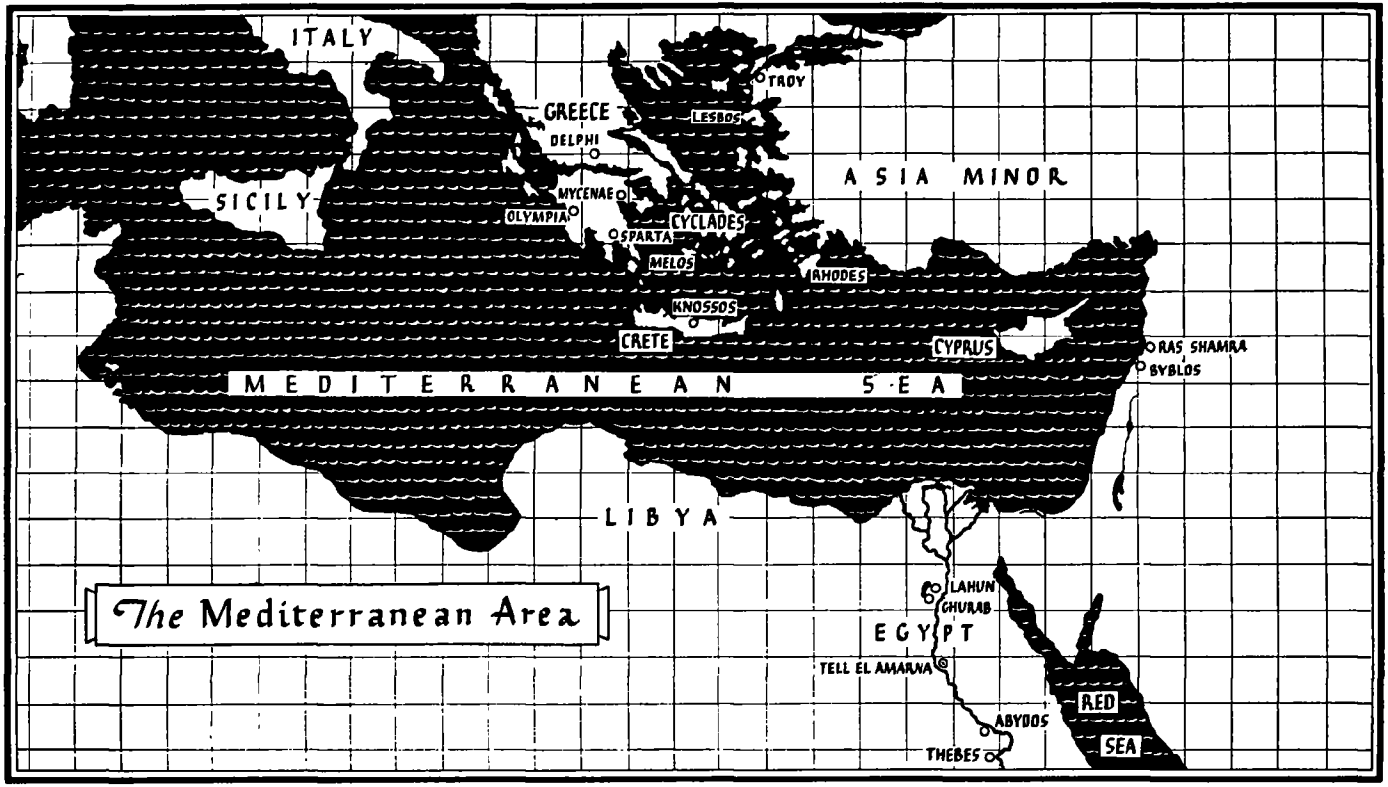
Creta Jovis magni medio jacet insula ponto
Mons Idaeus ubi et gentis cunabula nostrae.
Centum urbes habitant magnas, uberrima regna.
AENEID iii, 104–106.

A. PHYSICAL CHARACTERISTICS

THE POSITION of Crete, almost equidistant from Europe, Asia and Africa, marked it out from the earliest times as a stepping stone between the continents. It lies between parallels 23° 30′ and 26° 60′ E. and 34° 50′ and 35° 4′ N.

The landmarks must always have been of assistance to sailors *οἷοι ἐν ὄρφνᾳ*, and the distinctive shape of its mountains must have enabled them to set their course with ease to its harbours. Juktas, the solitary hill on the low land between Ida and Dikte, its shape like the profile of a bearded god, stands behind the harbour town of Knossos. The mass of Ida and the fantastic peak of Kophinos lead the traveller from Egypt to the anchorage of Fair Havens and the beaches of the Bay of Messara. The chain of islands, Rhodes, Karpathos, Kasos, will shelter a ship coming from Anatolia, Cyprus or Syria, while the triangular hill, Mount Modhi, serves as a guide to the Eastern harbours. The White Mountains, marking the position of Soudha Bay, are visible from Cape Malea. The summits of Dikte come into view soon after a ship leaves the Southern Cyclades for the harbours of Khersonesos or Miletos or the landlocked bay of Spina Longa.

The chief ports to-day are on the North coast, Khania, Rhethymnos and Herakleion, or, as the sailors in the Levant still call them, Canea, Retimo, and Candia. These have been artificially improved, while the other ports of the island have been allowed to fall into decay. Sitia and Hierapetra still have some trade, as has recently Agios Nikolaos, but the


ITALY
GREECE
DELPHI
SICILY
MYCENAE
OLYMPIA
SPARTA
TROY
LESBOS
CYCLADES
MELOS
RHODES
KNOSSOS
CRETE
ASIA MINOR
CYPRUS
RAS SHAMRA
BYBLOS
MEDITERRANEAN SEA
LIBYA
The Mediterranean Area
LAHUN
GHURAB
EGYPT
TELL EL AMARNA
ABYDOS
THEBES
RED
SEA

MAP 1

effects of the jealousy of the three big towns can be seen in the ruinous condition of many ports which were once prosperous.

It is not only jealousy, however, which has in comparatively recent times concentrated the trade on the North coast. Two other factors have combined. First, modern ships must ride at anchor ; they cannot be beached as was the universal custom of antiquity. Secondly, the coastline has changed considerably since Roman times. At some time in the sixth century a great submarine movement took place which tilted the whole island as if on a pivot. As a result the West end was raised in places as much as 26 feet out of the water so that the artificial harbour of Phalasarna on the West coast is now well above sea level and some 150 yards inland, while a corresponding subsidence in the East has caused the disappearance of many of the stretches of sand on to which the ships were hauled, and has swallowed up parts of the ancient towns.[1]

If, however, one takes account of the amount of elevation or subsidence and redraws the coastline to conform with the Admiralty soundings, it will be found that in every case the ancient settlements had either a good beach or the protection of a reef now submerged. Other effects of the earthquakes from which the island has so frequently suffered will be noted later. It is sufficient here to point out how materially one alone has affected the whole physical conformation of the island.[2]

Crete is about 250 kilometres (156 miles) long. Its greatest width is from Cape Stavros, West of Candia to Cape Kephala, the ancient Leon, a distance of 57 kilometres (about 36 miles). The isthmus of Hierapetra, however, is only 12 kilometres

[1] Spratt, II, 230 and *passim*, was the first to recognize this phenomenon. As to its exact date, Professor Newberry tells me that the Arab historian Masaud records that in the year A.D. 535 there was a great earthquake in the Delta as a result of which the land sank and the sea came in, destroying many towns and forming the salt lakes. The elevation of the West end of Crete accounts for the presence to-day of only one of the Mousagorai Islands, Elaphonisi ; the other two were no doubt Palaiokhora Selinou and Trakhila promontories. In the East the island of Mokhlos was once part of the mainland, the isthmus, now sunk, providing it with two harbours.

[2] No doubt the water supply was also altered at various times. Pseira has now no spring. The earliest cisterns are Greco-Roman, yet there was a prosperous settlement here from the earliest Minoan times though it is over 2 miles from the coast and is often stormbound for days at a time.

(about 7½ miles) across, and the isthmus of Rhethymnos is 18 kilometres (11½ miles).

The island is divided up by great blocks of mountains. Perhaps it would be truer to say that a single chain with but two considerable breaks runs the whole length of the island. Along its southern side the mountains come close down to the sea and the various settlements are approached by wild gorges which split the chain. No one who has passed Crete *en route* for Egypt can forget the forbidding appearance of this coast (Pl. I, 2). These mountains throw off spurs to the North which divide up the more habitable parts. In the West are the White Mountains, the *Λευκὰ Ὄρη* of the ancients (Pl. II, 1). The summits of these, Agios Theodhoros, Soros and Agion Pnevma, run up to 8,000 feet and are among the wildest parts of Europe. The *ἀγρίμι*, wild goat or Cretan ibex, still survives in some of the practically inaccessible gorges (Pl. I, 1). To these mountains resorted in Turkish times, and I can add of my own knowledge, still resort to-day, those with a price on their head. The men of Sphakia, the champions of the Cretan revolution, are still a race apart. I have met there a white-bearded *Καπετάνιος* who was at the storming of the fort near the village in 1866.

Connected with the White Mountains by low ranges to the North-West are the two steep promontories of Bousa and Spadha, the Korykos and Tityros of antiquity. To the West broken country descends to the coast and the windswept valleys of Enneakhoria. To the North is the fertile plain of Khania, 'the goodliest plot, the Diamond sparke and the Honny spot of all Crete', as Lithgow calls it.

East of the White Mountains comparatively low rolling country extends as far as the second great block of mountains. These centre round Mount Ida the modern Psiloriti (*ὑψηλὸν ὄρος*) (Pl. II, 2). First, near the South coast comes Kedros, an isolated mountain. Between this and Ida lies the fertile Amari valley (Pl. III, 4). Mount Ida itself reaches the height of over 8,000 feet. From its summit a wonderful panorama of the whole island is unfolded. North of Ida is the Mylopotamos valley, separated from the sea by the Kouloukounas range, the ancient Tallaion, which descends steeply to the rocky coast.

East of Ida the country is again low and rolling. The watershed is under 2,000 feet above sea level and the only conspicuous hill is that of Juktas. To the South is the plain

of Messara, well watered and one of the most fertile and productive parts of Crete. This is separated from the Libyan sea by the Asterousia range—to-day called Kophinos, which is pierced at intervals by wild gorges which run down to a precipitous coast.

Next comes the great mass of Dikte—the modern Lasithiotika Vouna (Pl. III, 1) centring round a high upland plain which was thickly inhabited in ancient times. There is a flat strip along the North coast where carob trees flourish, but except for the Vianos valley the country is rocky and inhospitable to the South.

East of Dikte is the narrow isthmus of Hierapetra, flat and low-lying, bounded to the East by the Thriphte mountains (Pl. II, 3). It forms a kind of funnel down which pours the hot sirocco in May (Pl. IV, 3). The mountains between the isthmus and Sitia extend right across the island, of which this is one of the wildest parts. Beyond Sitia stretches a high limestone tableland which reaches as far as the East coast (Pl. IV, 1 and 2).

A feature of the country, which has not yet been mentioned, is the number of upland plains. Most of them are completely surrounded by hills, and the water and snow which collects there during the winter is carried away by natural swallow-holes, or *χῶνοι* as they are called. The higher plains are used only in the summer by shepherds. In the White Mountains is the plain of Omalós, about 3,500 feet above the sea, too high for any but summer habitation, which begins when the shepherds bring up their flocks in April. It is accessible by the steep gorge of Agia Roumeli, and by easier passes from Selinos and the North. Next is Anopolis, only 2,000 feet high with the ancient city of that name on the ridge to the South (Pl. III, 3). Next comes the plain of Nidha, still preserving the ancient name of Ida (Pl. III, 2). This is nearly 5,000 feet in height and is covered with cheese dairies to which the shepherds resort towards the middle of May. Just above it is the cave of Zeus. Tracks passable by animals lead down to Anogeia—near the ancient Axos—Krousonas, the gate of Ida and a city of refuge in Turkish times, Gergeri, Kamarais, by a track which leads close to the sacred cave, the Amari valley, and the Mylopotamos valley.

The plain of Lasithi or Psykhro is less than 3,000 feet in height and is to-day as in ancient times thickly populated (Pl. III, 1). It is accessible from all directions, with the result

that although it is a self-contained unit it was, as we shall see, by no means cut off from civilization in antiquity, and while in the earliest days it developed a culture of its own it was by no means backward or lacking in contact with the outside world.[1] With Lasithi two smaller plains may be taken, Katharos and Limnarkaros. Both of these lie at a height of about 4,000 feet and are cultivated but not regularly inhabited.

In the mountains of the Sitia Peninsula are many such small plains, most of them at a low enough level to allow of permanent occupation, Zyros, Katalioni, Lamnioni and many others.

The importance of these plains, at any rate in Minoan times, may be judged by the fact that all those East of Ida were carefully guarded by forts.

The main change in the character of Crete since antiquity is the deforestation of the island. The catastrophe in the sixth century A.D. has had no effect on the main features, it has only caused shipping to seek other harbours. But the wanton destruction of the forests has altered the whole aspect. As we shall see, there is a strong probability that in Minoan days at least the whole island West of Ida was a great virgin forest which precluded the advance of civilization except on the coast. Even in Pliny's time Crete was the very home of cypress, and the wood which Thothmes III had received from the ships of Keftiu was still the material for ships all over the Mediterranean. But, beginning probably with the first arrival of man, deforestation has made continual progress, aided not only by a population thoroughly apathetic under Venetian and Turkish rule, but also enthusiastically by the goats, which eat the young shoots, until to-day the cypress is confined to a few trees in the West and to some new plantations in the Lasithi and Vianos districts. As a result the winter torrents have swept away the soil which had been held in position by the trees. In the Lasithi plain, for instance, there is an extraordinary depth of soil due entirely to the fact that the surrounding hills have been denuded. Crete, which was once one of the most fertile and prosperous islands in the Mediterranean, is now one of the rockiest and most barren.

To this cause also must be attributed the lack of water. Few rivers in Crete are more than a trickle in the summer, while

[1] The suggestion has been made (e.g. *B.S.A.*, VI, 115) that this plain was until M.M. times a lake, with the Diktaean Cave as a swallow-hole. This is disproved by the fact that the Neolithic settlement at Trapeza is on a lower level than the cave.

most are dry beds only. The Platanias West of Khania, the ancient Iardanos, the Gazanos, West of Candia, the ancient Triton, the Metropolitanos in the Messara, the ancient Lethaios, the Anapodhari flowing from the Messara to the South coast, the ancient Katarrhakhtes, and the Mylopotamos, the ancient Oaxes, are the only rivers which have never been known to dry up completely.

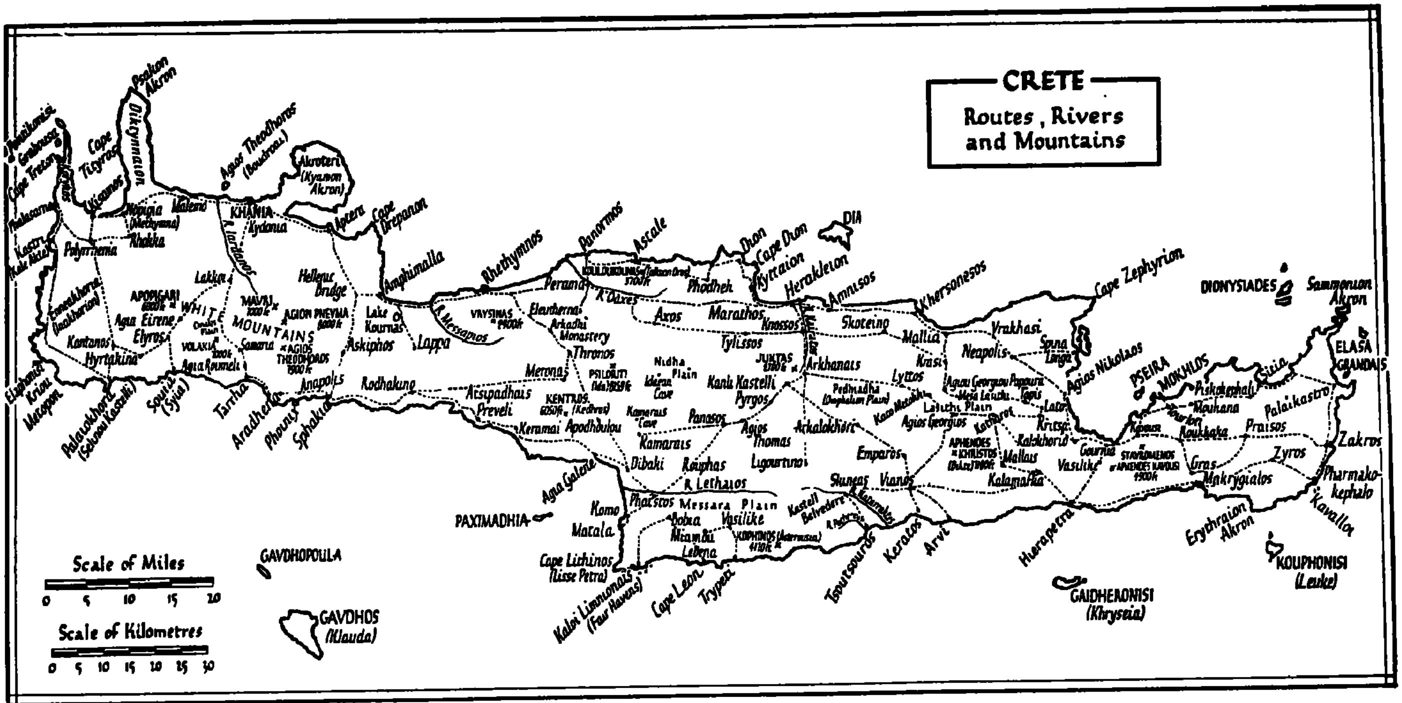
Springs have disappeared and sites such as Omalais to the North of Dikte which evidently supported a considerable population in ancient times are now completely deserted, save for a few *mandras* or shepherds' huts to which water must be brought from a distance.

None of the Cretan rivers, however, can have been navigable even in antiquity and the natural means of communication has always been by mountain paths suitable in many cases only to pedestrians. Such paths frequently begin as mere game tracks. It is not till the coming of wheeled traffic, and swift-wheeled traffic at that, when gradients have to be considered, that artificial roads are cut; the 'kalderims', or roughly paved roads made by the Romans, Venetians or Turks for military purposes, merely followed the prehistoric paths, and although there are few cases where Minoan banking or Greek bridges survive we are justified in considering that the means of communication between ancient sites was the same as that in use to-day or rather before the network of car roads was begun.

B. ROUTES AND TOPOGRAPHY

It is most important when considering the distribution of sites at certain periods to look at the means of communication each had with its neighbours; whether easy access from one quarter has caused a site to favour in its style of pottery the technique of another which may lie at a considerable distance from it; through what sections of the country would pass the traffic from Egypt, influencing perhaps one group of sites while another group is in closer touch with the Cyclades.

Only those who have actually walked the mountains can tell how misleading a map may be, and the maps of Crete are in any case woefully inaccurate. Who would think that from Souia on the South coast to Lakkoi South of Khania is as long a day's journey as from Tsoutsouros, the ancient Priansos, on the South coast to Amnisos on the North coast? Distances are useless. Times alone matter. The times given here are


CRETE
Routes, Rivers and Mountains
Scale of Miles
0 5 10 15 20
Scale of Kilometres
0 5 10 15 20 25 30
KHANIA
Kydonia
WHITE MOUNTAINS
Rhethymnos
Panormos
Phodheh
Heraklejon
Amnisos
Knossos
Tylissos
Arkhanais
Kastelli
Pyrgos
Messara Plain
Phaestos
Komo
Matala
Vasilike
Lebena
Kalamafka
Mallia
Neapolis
Lyttos
Krasi
Khersonesos
Cape Zephyrion
Agios Nikolaos
Gournia
Hierapetra
PSEIRA
MOKHLOS
Sitia
Palaikastro
Praisos
Zakros
Zyros
Makrygialos
Sammonion Akron
ELASA
GRANDAIS
DIONYSIADES
DIA
PAXIMADHIA
GAVDHOPOULA
GAVDHOS (Klauda)
GAIDHERONISI (Khryseia)
KOUPHONISI (Leuke)
Dia
Amphimalla
Aptera
Akroteri (Kyamon Akron)
Diktynnaion
Psakon Akron
Cape Tityros
Polyrrhenia
Elyros
Hyrtakina
Kantanos
Lakkoi
Lappa
Askiphos
Anapolis
Sphakia
Phoinix
Aradhena
Tarrha
Souia (Syia)
Rodhakino
Preveli
Kamares Cave
Idaean Cave
Nidha Plain
Axos
Marathos
Skoteino
Vrakhasi
Lasithi Plain
Agios Georgios
Arkalokhori
Emparos
Viannos
Arvi
Keratos
Tsoutsouros
Lethaios
Dibaki
Kamarais
Agios Thomas
Ligortino
Cape Leon
Trypeti
Kaloi Limniones (Fair Havens)
Cape Lithinos (Lisse Petra)
Agia Galene
Meronas
Thronos
Eleutherna
Arkadhi Monastery
Perama
Axos
Erythraion Akron
Kavallos
Pharmako-kephalo
MAP 2

almost all from personal experience and are probably about half-way between a running messenger and an ordinary party of merchants.[1] They are all walking—not riding—times and do not allow for halts. They vary according to the weather and to how fit the pedestrian was at the time. All that can be said for them is that they have been done.

The routes from the East coast to the isthmus of Hierapetra are three.[2] The northernmost starts at Palaikastro, one of the great centres of Minoan civilization, and after crossing a high limestone plateau descends in rather less than 4 hours to Petras and Sitia. Thence it passes the Middle and Late Minoan settlement at Piskokephali and ascends through wild country to Khamaizi, Mouliana, and Tourloti, whence a steep path leads down to Mokhlos (Pl. V, 3), at that time part of the mainland, in three-quarters of an hour. After leaving Tourloti the path runs high up along the flanks of Thriphte, passes Kavousi (Pl. VI, 1) and reaches Gournia (Pl. V, 4) in about 8½ hours from Sitia. The central route starts from Kato Zakros and ascends sharply (Pl. VI, 2), passing a number of small sites, to Apano Zakros in just over an hour, thence it again rises in a North-Westerly direction, skirts the North side of the hill above Apano Zakros and passing the small settlements and forts near Skallia and Sitanos reaches Praisos (Pl. VII, 3) in 3½ hours from Apano Zakros. West of Praisos there is a choice of roads, one rounding the North side of Romanati via Sykia, the other going round the South side via Adhromyloi and Agios Stephanos (till recently called Gras) and joining the first at Rukkaka; the former takes about 5 hours, the latter 7. From Rukkaka the road goes on to Avgo and Kavousi, reaching Gournia in rather under 4 hours.

The southern route starts from Pharmakokephalo close to the ancient Ampelos (Pl. VIII, 4), it ascends by Khoumetalo to the Zyros plain in 2½ hours. That this was an important route is shown by the number of guard stations on the way. Thence it turns South-West to Makrygialos and goes along the shore, passes the E.M. site at Agia Photia and reaches Hierapetra in 7½ hours.

[1] A cross-country runner who would undertake to explore the various ancient routes in Greece before the countryside is ruined by car roads would collect a lot of interesting material. The times not from my personal experience are taken from a very useful book, *Κρητικά*, by N. Kalemenopoulos, 1894.

[2] At every place mentioned on the following routes there exists an ancient site.

North and South run a network of roads, some of them demonstrably ancient, Palaikastro to Ampelos with its forts at Kokhlakiais and 'stas Tavernais',[1] the well-cut and banked road South of Zakros and the stations at Lidhoriko Skismenes, Malamourais and Katsounaki, and the route from Lamnoni via Sitanos and Katsidhoni to Sitia.

The easy road across the Hierapetra isthmus naturally attracted settlers. Kedhri, Episkope, Vasilike, and Monasteraki are all on the short route of 2½ hours between Hierapetra and Pakhyammos. But it is somewhat surprising to find that few of them are of importance and that in none has ever been found an object of foreign manufacture. Certainly the French during the Occupation found it advisable to land stores at Hierapetra and transport them by land rather than face the dangerous rounding of Cape Sidhero.

From Gournia an easy path leads to Kalokhorio, the ancient Istron, in just over an hour. At this point the road branches. One arm turns North to Agios Nikolaos—the ancient Lato pros Kamara and thence to Neapolis in about 4½ hours, where it is joined by the road from Olous the modern Spina Longa which passes Dreros and reaches Neapolis in about the same time. From Neapolis the road descends by Vrakhasi to Mallia in 3 hours, whence the coast road via Khersonesos, Nirou Khani and Amnisos leads to Herakleion in 6 hours or so.

The second arm goes North-West to Kritsa and either directly up the Minoan road, guarded by the fort known as the Kitten's Cistern to the Katharos plain, whence it descends to the plain of Lasithi, again by a guarded Minoan way in about 8½ hours, or by the magnificent site of Lato 'Etera'[2] (Pl. VII, 1) to Tapis and over a high col on the North side of Mount Aloïdha to Mikro Lasithaki in very much the same time.

The most usual exit westwards from Lasithi is from Katometokhi over to Lyttos in 4 hours and to Knossos in another 5, but two equally serviceable and easier ways exist, one on each side of the important but as yet unexcavated site of Agiou Georgiou Papoura. The easternmost descends beside the

[1] It would be more in keeping with the peaceful character of Minoan civilization and with convivial Cretan habits if we could take a clue from this name and call all of them taverns rather than forts.

[2] Lato 'Etera' was connected with its harbour of Lato pros Kamara by a road running through the plain of Lakonia, guarded at its exit by 3 forts at Peponi Khani, Agios Ioannes and Agios Stavros. This takes 1½ hours.

fortified peaks of Karphi and Koprana to Krasi whence Mallia is reached in about 3½ hours. The western descends a fine gorge to Goniais, Avdhou, and Mokhos, in 2½ hours. From Mokhos to Knossos via the sacred cave at Skoteino and Skalani is about 6½ hours. Karphi and Koprana also guard the route to Omalais, the city of castles, which lies on the now dry northern slopes of Mt. Selena.

Another easy route to the Plain of Pedhiadha is from Plate over the saddle between Mt. Aphendes and Mt. Sarakinos to Geraki in 2¾ hours.

Southwards a road goes from Kaminaki to Erganos and Vianos in 5 hours, where it joins the other main route from the East described below.

The southern route from Hierapetra passes Kalamafka, whence branches go up to the Katharos Plain and to Mallais, and keeping high above the sea reaches Vianos, the ancient Bienos, in some 8 or 9 hours.[1] From Vianos the sacred cleft of Arvi, with its temple of Zeus Arbios, and the twin peaks of Keratos, can be reached in 2½ and 2 hours respectively. Westwards from Vianos are two routes, one reaching Emparos in 2 hours and one entering the Messara Plain near the river Katarrhaktes in 3½ hours.

The Messara plain is naturally too flat and well cultivated to have preserved any trace of ancient routes. The following tracks, however, lead out of it southward through the Asterousia range to the sea. From Kastell Belvedere (Rhizokastro), the ancient Stelai (Pl. VII, 2), a fine track good enough in places for wheeled traffic leads down to Tsoutsouros, the ancient Priansos, in not much more than 1½ hours. From Vasilike two fine gorges lead down to Trypeti in less than 2½ hours, the easternmost, Goulopharango, showing distinct traces of banking and of Minoan guard-houses at Agia Paraskeve and Agios Savas. An easy route also leads from Vasilike via Makry Livadhi to Miamou in 1¼ hours.

Lebena, one of the harbours of Gortyna, is approached most easily from Bobia, the ancient Boibe, via the Monastery of Apezanais. From Bobia also an easy path runs down to Kaloi Limenes—the Fair Havens of St. Paul—in less than 3 hours. Matala or Metallon the other harbour of Gortyna is 2 hours from Phaistos.

The main North and South road of Central Crete, in fact one might almost call it the highway of Minoan civilization,

[1] As to this time I am not certain, as I lost my way.

runs South from Knossos to Phaistos and on to the unexcavated port of Komo. It was traced by Sir Arthur Evans.[1] The settlement of Sylamos, and the city of Kanli Kastelli, the ancient Lykastos, are served. Thence the road runs to the guard-house at Pyrgos and on to Agios Thomas, perhaps the ancient Pannona. It turns West to Panasos and can be traced at intervals to Rouphas near Myrais. It can be picked up again beyond Phaistos, where it runs down to Sphakoriako and so to Komo. By this route Phaistos can be reached in about 12 hours. To Komo, via Sphakoriako and Kakodheti, is somewhat under 2 hours.

Knossos itself was connected with its harbour town East of the modern Candia by a road which passed close to the cemeteries of Zapher Papoura and Isopata and took just under an hour. The branches of the road are as follows. From Sylamos a path ascends to the sanctuary on Mt. Juktas about 2½ hours from Knossos. From the same spot runs a road via the fort of Karydhaki to Arkhanais in an hour and on via Vathypetro to Ligourtino and the Messara in another 5 hours. From Kanli Kastelli a branch of the road runs South-East towards Arkalokhori, which it reaches in about 3 hours. From Panasos a branch runs West towards Kamarais, which is somewhat under 4 hours away.

Up to this point most of the sites have been Minoan and in some cases the actual Minoan-built road has survived. From here westwards we have no evidence save the occurrence of sites along natural paths and the occasional survival of a Hellenic bridge.

Between the Candia and the Rhethymnos district are six main lines of approach, not counting those which cross the higher parts of Ida and which are impassable for mules except in summer.

First comes the North coast route, at first following traces of a Minoan road,[2] via Palaikastro Rodhias—the ancient Kyttaion—Agia Pelagia—the ancient Dion, Phodhele the orange-scented birthplace of El Greco, Bali—the ancient Astale, Roumeli Kastelli—the ancient Panormos. This route follows some of the worst tracks in Crete. It joins the next route just beyond Perama and as far as Rhethymnos takes just over 18 hours. From Perama a branch leads off to Eleutherna in 2 hours.

Next comes the route via Marathos and Dhamasta to Perama

[1] *P. of M.*, II, 60 ff. [2] *P. of M.*, II, 232.

in just under 11 hours and on to Rhethymnos in 4 more. Next the route which passes Tylissos, Goniais and Axos to Perama in 10 hours.

To the South of these routes the great mass of Ida blocks the way, and although the passage to the Nidha plain and beyond is easy enough for a mule, it is unlikely that it would be taken except for a *πανήγυρις* (religious festival) at the Idaean Cave, which lies some 4½ hours from Anogeia and Krousonas and 2½ from Kamarais.

South of Ida are three main routes, the first two skirting Mt. Kedros to the North, the third to the South. All start at Dibaki which lies 50 minutes West of Phaistos. The first runs up the Amari valley via Apodhoulou, Thronos—the ancient Sybrita (Pl. VII, 4) and the monastery of Arkadhi to Rhethymnos, taking about 13 hours. The next branches off this at Thronos and runs to Meronas, Ellenais, Gerakari and Atsipadhais in 7 hours. Last comes the coast road via Agia Galene, the ancient Soulia, round the North side of Vouvala to Keramai and Agios Ioannes Monastery at Preveli in 10 hours.

The only North–South route I know is from Preveli Monastery via Gerakari, Patsos (Pl. II, 4), Bene, Ornithe and Monopari, which takes by this roundabout way some 17 hours. According to Kalemenopoulos' *Κρητικά*, the direct route from Rhethymnos to Agia Galene takes about 11 hours and to Preveli 12.

From the Rhethymnos district West the road most in use is that which follows the North coast via Dhramia, the ancient Hydramon, and Georgioupolis, the ancient Amphimalla; it crosses the Almyros river—the Amphimalla river of Strabo—by a bridge of which the foundations are Hellenic, cuts behind Cape Drepanon, which still preserves its ancient name, and reaches the coast again at Aptera in just over 6 hours. From Aptera to Khania (Kydonia) is 2½ hours.

The southern route continues from Preveli as near the coast as it can, reaching Sphakia in 9 hours and continuing on to Anopolis in another hour and three-quarters. Below Anopolis is the little port of Phoinix, which belonged to the city of Lappa. Strabo implies that a regular route existed from here to Amphimalla, a distance, he says, of 100 stades. This is an accurate measurement of the narrowest part of the island here, from Amphimalla to the South coast at Frankokastelli. To Phoinix, however, it is 120. Presumably the route ran by Kallikrate to Lappa, which I am told takes

7½ hours, and thence by Lake Kournas, the only lake in Crete, called Korion or Koresion in antiquity, to Amphimalla in about 4½ hours more. A more direct route would be through the Askiphos gorge in about 6½ hours.

Westwards from Anopolis the going is hard, but evidently a route existed in antiquity which must have served Araden. Beyond this it descends an almost sheer slide of shale for 2,000 feet to the shore, where there is a spring of water within a few feet of the sea (Pl. I, 2). Agia Aikaterine, where lie the scanty remains of Tarrha, is reached in just over 4 hours. The route North from here to Khania via the magnificent gorge of Agia Roumeli (Pl. I, 1) and the plain of Omalos takes about 13 hours, but the time depends on how much water is flowing in the gorge. Agia Aikaterine to Samaria may take anything from 2 to 3½ hours. West of Agia Aikaterine it is impossible to take pack animals.

From Khania the road runs along the coast to Malemo, crosses the base of cape Spadha, passes Nokhia, perhaps the ancient Pergamos, Nopigia, perhaps Methymna, and reaches Kisamos in about 7 hours. Another branch must have left the main road at Nopigia to serve Rhokka and Polyrrhenia, which it reaches in 3¾ hours, thence to Kisamos in another hour. Polyrrhenia was connected with its port at Phalasarna on the West coast 60 stades away, as Strabo accurately says. From Polyrrhenia to Mesogeia I have not walked, but I am told it is about 1½ hours. From thence to Phalasarna is 1¾ hours.

A rough coast road connects Phalasarna with the south-western cities of Crete. It runs via the watch tower of Kastri, perhaps the ancient Kale Akte, passes the mouth of the Enneakhoria valley, which may preserve the ancient name Inakhorion, and leaving slightly to the West the small site at Khrysoskaletissa monastery, turns up through Sklavopoula (? Doulopolis), thence descending to Palaiokhora or Selinou Kastelli in about 17 hours. Another ancient route to the South must be followed more or less by the modern car road from Kisamos to Palaiokhora. From Palaiokhora the road runs up the Vlythias ravine, passing the site of Kalamyde, to the ancient Kantanos in 2 hours. From there it turns sharply eastwards to Hyrtakina and Elyros 3 hours from Kantanos. From Elyros a well-used track, obviously ancient from the rock-cut tombs and the aqueduct beside it, leads down to Souia—the ancient Syia—in 1½ hours. From this point a scramble of an hour round the cliffs leads westwards to Agios Kirkos (Lissos)

(Pl. VIII, 2), also accessible in about 1½ hours from Elyros. Eastwards, and again accessible by land only by unencumbered pedestrians and goats, lies Voukilasi—the ancient Poikilassos.

From Elyros—though I have only been from Souia, skirting Elyros—a path leads to what seems to be the cemetery of that city at Kampanos and thence via Agia Eirene, near to which village Spratt saw traces of an ancient way up to Omalos, to Khania which is reached in 12 hours or less from Souia.

So much for communications by land, which have changed little save for the gashing of the countryside by car roads. The communications by sea, however, must have played an important part. Locally, as we have seen above, conditions may have changed since the catastrophe of the sixth century, but things have probably balanced out. Where one harbour has been rendered useless, another close by has been made accessible. We can generally judge from the Admiralty Charts what the conditions must have been.

We are fortunately in possession of a most important document, the Stadiasmus. This is a compilation, parallel to the Admiralty's *Mediterranean Pilot*, of probably the sixth century A.D., but certainly prior to the earthquake. It gives distances and anchorages as well as the presence of water and facilities for devotion.[1] Unfortunately the distances have been written in figures, not at full length. Scribes being notoriously liable to miscopy figures, the document can only be taken to check the relative position of sites. A further difficulty is created by the fact that, as has been pointed out above, ships in ancient times were beached on stretches of sand or shingle. This means that they would have been able to use certain ports at present inaccessible. On the other hand, their inability to tack or indeed sail close to the wind must have, even allowing for the use of oars, precluded ships from seeking refuge in what have since become quite safe anchorages.

Another important topographical point is the kind of site preferred for settlement at each period. So striking are the changes in taste that it would almost be possible, on seeing a photograph of a piece of Cretan landscape and being told that

[1] See Appendix A, II, 1, at the end of this chapter. It is curious that prevailing winds are not mentioned, nor outlying dangers. Several sites which one would have thought to have been of sufficient importance to mention are not named, e.g. Itanos and Ampelos on the East coast, Rhethymnos, Panormos, Amnisos and Miletos on the North coast, Priansos on the South coast.

there was a site there, to give the earliest date of that site. In Neolithic times we find the inhabitants of Crete dwelling in caves. Ellenospilo at Potisteria North of Gonia Monastery on Cape Spadha with its settlement 70 metres into the hillside, Ellenais, Amnisos, Trapeza in Lasithi (Pl. V, 1), Magasa, Skallais and Zakros in the East all show the fear, perhaps of wild beasts, in which Neolithic man went. On the other hand, the largest settlement, at Knossos, occupies the site of the later Palace.

In Minoan times life was evidently as peaceful as to-day. Unfortified towns were built on low knolls, often near the sea. (Pl. V, 2, 3, 4). Then, after the break up of the Bronze Age civilization we find the castles of the robber barons on the rocky eyries of Karphi, Kavousi, Vrokastro and the Zakros Gorge. No consideration of a water supply is shown. The one concern is inaccessibility (Pl. VI, 1 and 2). In Archaic times the uncertainty of communal rather than personal safety, inseparable from the petty city politics of Greece, caused the sites chosen to be high flat-topped hills, surrounded if possible by ravines. Such typical sites are seen at Eleutherna, Polyrrhenia, Prinias, Hyrtakina, Lato, Dreros, and many other places (Pl. VII and VIII, 1). In Hellenic times and later these sites naturally continued to be occupied, but from the beginning of the fifth century there is a tendency to come down from the city of refuge until in Roman times we see a number of sites occupied which had not been inhabited since Minoan days (Pl. VIII, 2, 3, 4).

C. AUTHORITIES

A word must be said about those who followed the ancient geographers. They can be easily divided into two classes, the pre- and post-Pashley.

The earliest is the Florentine traveller Buondelmonte in 1422. His work is included in Cornelius, *Creta Sacra* (1755). Many of the remains which he saw, such as the walls of Kisamos, have now disappeared.

That quaint writer Tournefort makes few excursions into archaeology in his *Voyage au Levant* (Paris, 1717, of journeys in 1700). Next comes Johann Meursius, who collects all the references from classical authors in his *Creta* (Amsterdam, 1675). Pococke in the second volume of his *Description of the East* (London, 1745) and Cramer in the third volume of his *Description of Ancient Greece* give a wealth of inaccurate informa-

tion. Karl Hoeck's *Kreta* (Gottingen, 1823–9) is the first scholarly account of the island. It suffers from the fact that the author never visited it himself, but even Pashley, a most stringent critic, is glad to avail himself of Hoeck's suggestions.

From February to September 1834 Robert Pashley, Fellow of Trinity College, Cambridge, made a prolonged tour of the island during the course of which he identified most of the important sites with an accuracy which had never before been attained and has in few cases since been challenged. His results were published in two volumes, *Travels in Crete*, by John Murray in 1837. They are unfortunately incomplete, private affairs having prevented him from arranging his material from the East end of the island. Pashley's profound knowledge of the language as well as of the antiquities render his work an inexhaustible treasure-house. His scholarship, his humour, and his way with the Cretans have combined to give us a fascinating work. His map was drawn before Spratt's admirable survey and is, in detail, not entirely trustworthy. But it is far in advance of any previous map and clearly marks the position of the sites he determined, though it is not above the suspicion of showing those which in the text he cannot fix.

Captain (later Admiral) T. A. B. Spratt was engaged during the years 1851–3 in surveying the coast of Crete for the Admiralty. The official results obtained by him and his staff are given below in the Appendix as well as in part of the fourth volume of the *Mediterranean Pilot* (last edition 1918 with yearly corrections since). At the same time he made a number of tours in the interior of the island which resulted not only in a quantity of information concerning the natural history and geology of Crete, but also in a critical survey of the archaeological remains in which he was occasionally able to supplement or correct Pashley. He published in 1865 two volumes—*Travels and Researches in Crete* (Van Voorst) illustrated from sketches of his own, the maps being simplifications of the Admiralty charts. His greatest contribution to our knowledge of the island is his demonstration of the convulsion of the earth which tilted the West end of Crete out of the sea and sank the East end.

Neither his scholarship nor his knowledge of the language can compete with Pashley's, but his common sense, enthusiasm and simple directness have produced a most valuable book.

In 1845 Victor Raulin began his work on Crete. His results were first published in ten articles between 1858 and

1869 in the *Actes de la Société Linnéenne de Bordeaux* and were combined in the latter year with a few additions into the two volumes of his *Description Physique de l'Isle de Crète* (Bertrand, Paris). Archaeological topics, except for *obiter dicta* and items in a most useful bibliography, are excluded, and he has not the interest in the problems and life of Crete which Pashley and Spratt display, but his book will remain a permanent and authoritative account of the physical features of the island. His map is based on that of Spratt with a few minor corrections of detail and a different method of orthography.

Captain A. Trevor-Battye was Raulin's only modern successor. His book, *Camping in Crete*, 1913, contains useful information on plants, animals and birds, and its value is increased by Miss Bate's chapter on the remains of early animal life, such as the pygmy hippopotamus found in the caves of the island.

In the year in which Spratt began his work in Crete A. J. Evans was born. After a youth filled with experience enough to last an ordinary man a lifetime he first visited Crete in 1893 in search of sealstones and the prehistoric script which they revealed. His travels in Crete continued at intervals until in 1900 the improvement in political conditions enabled him to begin what has proved to be his life's work—the excavation of Knossos and the revelation of the Minoan civilization. A new world was opened to the archaeologist and historian. His topographical researches which began with the discovery of most of the important sites in East and Central Crete (for which the excavators of these sites have not always given him credit) have continued down to 1924, when, at the age of 72, he traced the course of the Minoan roads from the North to the South coasts. The published results of his work are too numerous to mention here. They are to be found in the Bibliography.

Dr. Federigo Halbherr was also one of the pioneers of archaeology in the island. His many discoveries in Central and Eastern Crete appeared both in the *Antiquary* and in the *American Journal of Archaeology*. The coal-black arab mare on which he would gallop over the mountains has become a legend. His compatriots Mariani, Savignoni and Taramelli also did good topographical work, published in the *Monumenti Antichi*.

The late R. B. Seager, excavator of Mokhlos and Pseira,

made a number of journeys particularly in West Crete. The results of these remained unpublished owing to his untimely death.

Incidental topographical references, subordinated to the main purpose of giving a report of the excavations, are to be found in the early numbers of the *Transactions of the University of Pennsylvania* by Miss Boyd (Mrs. Hawes) and Miss Hall, also by D. G. Hogarth in his account of Zakros in the *Annual of the British School at Athens*, VI, and by R. C. Bosanquet and R. M. Dawkins in their publications of Praisos and Palaikastro in later volumes of the same journal.

The successive ephors of Crete, Joseph Hazzidakis, S. Xanthudides, and S. Marinatos, have actually had little time for anything beyond publishing the results of the numerous excavations they are forced to make owing to chance discoveries by peasants, but a glance at the publications of the Greek Archaeological Society and the Ministry of Education will show what an amount of ground they have covered.

To Joseph Hazzidakis in particular a great debt is due for his foundation of the Syllogos and for his untiring efforts in forwarding archaeological enterprise and in aiding foreign savants during the difficult years of the Turkish domination and the revolts against it.

Svoronos in his *Numismatique de la Crète Ancienne* and Bursian in the second volume of his *Geographie von Griechenland* make a number of apt suggestions but do not know the country personally.

APPENDIX

A. ANCIENT AUTHORITIES ON ROUTES

I. *Land*

8 stades = *c.* 1 mile. 1 Roman mile = *c.* 1½ kilometres. An asterisk denotes that I have not traversed the whole route or have not taken the shortest way.

1. Strabo, X, iv (1st century B.C.).

Route	*Stades*	*Remarks*
Phalasarna–Polyrrhenia .	60	Very nearly correct. Time 3¼ hours.*
Polyrrhenia–sea (Kisamos)	30	Accurate. Time 1 hour.
Kydonia–Aptera . . .	80	Actually about 70. Time 2½ hours.
Kydonia–Knossos	800	Actually 600 by the Perama–Marathos route. Time 23½ hours.
Kydonia–Gortyna . .	800	Actually 600 by the Rhethymnos–Thronos–Apodhoulou route. Time 25 hours.
Knossos–Gortyna . .	200	Very nearly accurate by the Minoan road. Time 9½ hours.
Knossos–Lyktos . . .	120	Rather on the low side, nearer 130. Time 5 hours.*
Knossos–sea (Herakleion)	25	Accurate. Time 50 minutes.
Lyktos–Libyan Sea . .	80	This is obviously a mistake for the northern sea and Khersonesos, the Lyktian harbour. Accurate. Time 3½ hours.*
Gortyna–sea (Lebena) .	90	Accurate. Time 4½ hours.*
Gortyna–Metallon . .	130	Actually about 105. Time 4½ hours.
Gortyna–Praisos . . .	180	Priansos is obviously intended. This is usually put at the mouth of the Tsoutsouros, but the next route but one makes it 60 stades from the

Route	*Stades*	*Remarks*
		sea, i.e. at Ini, which most scholars agree marks the site of Inatos. In any case the distance is the same and is accurately given. Time from Gortyna to Ini about 7 hours.*
Gortyna–Phaistos . . .	60	Accurate. Time 2½ hours.
Praisos (Priansos)–sea .	60	See above. Ini is evidently intended. Tsoutsouros to Ini is actually nearly 80. Time 3¼ hours.
Amphimalla–Phoinix Lampeon	100	Actually Strabo is giving the width of the island at its narrowest in this part. Thus from sea to sea as the crow flies he is certainly accurate. Phoinix, however, lies some distance to the West of the line and is by the route through the Askyphos gorge about 145 from Amphimalla. Time 7¼ hours.*
Hierapytna–Minoa Lykteon	60	Accurate as to the width of the island at this point as the crow flies. Actually by road it is about 70. Time 2½ hours.
Phaistos–Metallon . .	40	Actually nearer 50. Time just under 2 hours.

2. Peutinger Table, A.D. 350–400.

Route	*Roman Miles*	*Remarks*
Kydonia–Kisamos . .	8	This must be the Kisamos mentioned by Strabo as the harbour of Aptera. The table distinguishes 2 Kisamoi. Pashley would put it at Apokoronou Kastelli farther East. If the table is right it must have lain just below Aptera at Fort Izzedin.
Kisamos–Lappa . . .	9	This must be wrong. The distance from Kydonia to

Route	*Roman Miles*	*Remarks*
		Lappa is at least 31. Time 11 hours.
Lappa–Eleutherna . .	32	This is an overstatement. The distance is 25 at the outside. Time 9 hours.*
Eleutherna–Sybrita . .	8	Fairly accurate. If anything an understatement. Time 3½ hours.
Sybrita–Gortyna . .	32	Fairly accurate. Time 10½ hours.
Gortyna–Knossos . .	27	Accurate. Time 9½ hours.
Knossos–Khersonesos .	16	Accurate. Time 4½ hours.
Khersonesos–Lyttos . .	16	Actually about 11. Time 3½ hours.*
Lyttos–Arkadia . . .	16	Arkadia is one of the most elusive of sites. The two main choices are Melidhokhori, the most probable, and Phrati. These are respectively 20 and 11 from Lyttos and 6 and 20 from Biennos. In point of fact as the figures are given there can be no such place, since Lyttos is less than 14 from Biennos! In any case no site which is as yet unnamed lies at such a distance from either Lyttos or Biennos.
Arkadia–Biennos . . .	30	
Biennos–Hierapytna .	20	An understatement. It is actually about 23. Time 9 or 10 hours.*
Hierapytna–Inatos . .	32	Accurate, assuming that Inatos is at Ini. Time 13–14 hours.*
Inatos–Gortyna . . .	23	Accurate. Time about 7 hours.*
Gortyna–Lebena . . .	12	Lebena and Laseia are wrongly placed on the table, Laseia being shown as lying to the East of Lebena. The distance to Lebena is accurate, however. Time 4½ hours. That to Laseia is overstated, being actually only 13. Time 4½ hours.*
Gortyna–Laseia . . .	16	

Route	*Roman Miles*	*Remarks*
Kydonia–Kisamos . .	32	This is the other Kisamos, West of Kydonia. The distance is overstated, being only 25. Time about 7 hours.*
Kisamos–Kantanos . .	24	About right. Time about 8 hours.*
Kantanos–Lissos . . .	16	This is not more than 13, even allowing for going round by Elyros. Time $4\frac{3}{4}$ hours.*
Lissos–unnamed town .	30	There is no site at this distance East of Lissos. Tarrha is 14. Anopolis 20. 30 miles would bring one to somewhere near Frankokastelli. But in any case the route is for the first 14 miles impassable for pack animals and can never have been of sufficient importance to be shown.

II. *Sea*

1. STADIASMUS (*ΑΝΩΝΥΜΟΥ ΣΤΑΔΙΑΣΜΟΣ ΗΤΟΙ ΠΕΡΙΠΛΟΥΣ ΤΗΣ ΜΕΓΑΛΗΣ ΘΑΛΑΣΣΗΣ*) 318.
Byzantine of sixth to eleventh centuries. It must be sixth, for it mentions Phalasarna, which went out of use in the middle of the sixth century.
M.P. = *Mediterranean Pilot*, Vol. IV.
The distances are given in figures and are often corrupt.

Route	*Stades Given*	*Actual Distance*	*Notes in Text*	*Remarks*
Kasos–Samonion	500	240	Shelter, water, temple of Athene	Kavo Sidhero (St. Isidore) small harbour by Agios Ioannes church, East of Lighthouse.
Samonion–Hiera Pydna	80	420	Anchorage	Ancient moles now ruined.
Hiera Pydna–Bienos	70	130 to Arvi 140 to Alike below Keratos 160 to Vianos by land	Small city away from the sea	Vianos is 2½ hours above Arvi and 2¾ above Alike (a small M.M.III–L.M.I site).
Bienos–Lebena	70	250	Good water	M.P. 64 says there is anchorage in 10–20 fathoms. But a good beach.
Lebena–Halas	20	30		Lasseia or Thalasseia. Remains of mole connecting Traphos island with shore. Probably sailors also used Fair Havens to West.

Halas–Matala	300	100	City and harbour	Subsidence of coast very marked here. Tombs below the sea.
Matala–Soulia	65	Accurate	Harbour and good water	At Agia Galene. Also called Soulena.
Soulia–Psykhion	12	60	Summer harbour and water	The 292 stades of the total is correct. But Psykhion is almost certainly at Kavo Melissa (*AR* stater of Gortyna in the museum) 60 st. W. of Soulia. The only other site on the coast known to me is below Keramai 35 st. W. of Psykhion. Lamon might conceivably have stood on the site of Frankokastelli, which is about the right distance from Psykhion, and Apollonias might be at Sphakia about 45 st. W. of Frankokastelli and about 35 E. of Phoinix though the only finds near here have been L.M.III.
Hiera Pydna–Psykhion	350	600		
Psykhion–Lamon.	150	? correct	City, harbour and water	
Lamon–Apollonias	30	? 45		
Apollonias–Phoinix	100	? 35	City, harbour and island	
Phoinix–Klauda	300	about 200	City and harbour	Spratt saw a Hellenic site on NW. end. M.P. 59 says anchorage in roadstead to E. is 10–20 fathoms.
Phoinix–Tarrha	60	about right	Small town, anchorage	At mouth of Agia Roumeli Gorge. M.P. 57 temporary anchorage for steamers only.

Route	Stades Given	Actual Distance	Notes in Text	Remarks
Tarrha–Poikilassos	60	about right	Anchorage and water	City is in the gorge above Voukilasi.
Poikilassos–Siba	50	45	City and fine harbour	Syia, port of Elyros. M.P. 56 no anchorage now, beach only.
Siba–Lissos	30	20		Agios Kirkos. M.P. 57 calls it a temporary anchorage. There can never have been a good beach.
Lissos–Kalamyde	250	60		Actual city is inland S. of Vlythias. There are traces of a harbour town at *Τροχάλοι* by Palaiokhora. M.P. 55 good anchorage and beaches.
Kalamyde–Krioumetopon	30	55	High promontory, shelter and water	Traces of buildings and worn columns at Limnaki. M.P. 55 in Port Krio accommodation reduced by rise of land.
Krioumetopon–Bienos	12			Somewhere in bay between Krioumetopon and Elaphonisi.
Bienos–Phalasarna	260	175	Harbour and water	Artificial harbour, now raised above sea level, rings for fastening ships still visible not long ago. M.P. 53 says there is now anchorage within islet and reef of Petalidhos.

Phalasarna–Iousagorai Is.	60	Accurate	Faces East, port and temple of Apollo	This makes the Iousagorai or Mousagorai Pontikonisi. Pliny says they were the three islands round Krioumetopon, i.e. Elaphonisi, and Cape Trakhila and Palaiokhora before the raising of the land. M.P. 23 says there is no change.
Iousagorai–Mese	3	Accurate	Anchorage	The attendant rock S. of Pontikonisi.
Mylai–Treton	50	Accurate	Mylai, 3rd island of Iousagorai. Deep water and Treton, a rocky promontory	Mylai must be part of the mainland now. There are several parts of the site at Phalasarna which must have been islands. Treton is Cape Tigani.
Treton–Agneion	50	Accurate	Temple to Apollo : harbour and an inner bay called Myrtilos. Water	Agios Sostes ? on Cape Bousa. M.P. 26 says the water is too deep for anchoring, stern must be secured to the shore.
Agneion–Kisamos	30	70	A city in the gulf. Harbour and water	Ancient port nearly dry. Remains of massive mole, good beach, no safe anchorage.
Kisamos–Tityros	25	60	High wooded promontory looking N.	? Agios Pavlos on W. side of Cape Spadha.

Route	Stades Given	Actual Distance	Notes in Text	Remarks
Tityros–Diktynnaia	80	Accurate	On the shore	At Meniais or Kantzillieria on E. side of Cape Spadha. Good beach. M.P. 26 coasting vessels can secure under N. cliff. Temple of Britomartis.
Diktynnaia–Koite	170	105	Island with anchorage and water on S. side	Must be Agios Theodhoros, one of the Boudroai also called Akoition. M.P. 27 limited anchorage in case of necessity under NE. point in 9–10 fathoms.
Koite–Kydonia	60	45	City and harbour with rocks at entrance	M.P. 29 entrance to harbour impossible with strong N. wind. Scylax says it had a closed port.
Kydonia–Aptera				
(1) sea	150	170	Minos (? Minoa) is mentioned as if it was identical. But that is opposite, below Sternais on Akroteri.	M.P. 32. Mole was submerged.
(2) land	120	75		
Aptera–Amphimatrion	150	125	A harbour where vessels can winter	The same as Amphimalla. M.P. 35 says it must have been a good harbour before the land rose and formed a bar only 3 feet below the surface at the mouth.

Amphimatrion–Hydramon	30	Accurate	Has a beach
Hydramon–Astale	30	240	Harbour to left, with water
Astale–Eleutherna (land)	50	65	
Astale–Herakleion	100	175	City with harbour and water
Herakleion–Dios Island	40	65	
Herakleion–Knossos (land)	20	Accurate	
Herakleion–Khersonesos	30	130	Winter harbour. Island with tower and harbour
Khersonesos–Olous	60	260	Promontory, anchorage, good water. 20 stades away is a small island
Olous–Kamara	15	35	

At Dhramia. Roman remains.

M.P. 37 anchorage for light craft against N. gale. Greco-Roman site. Bali.

The text says Hydramon to Eleutherna but is particularly corrupt at this point. About 4½ hours.*

Port of Knossos, overbuilt by modern Candia.

At Agia Pelagia bay and on high ground to North, extensive Roman site. M.P. 41 all three bays have good anchorage.

M.P. 43 port too shallow. Ancient moles still show.

The island is the leper island of Spina Longa. M.P. 44 says Poros is a good shelter from N. winds. Ruins of city now partly submerged.

Lato pros Kamara, at Agios Nikolaos. M.P. 46 says there is good anchorage. Extensive Greco-Roman site.

Route	Stades Given	Actual Distance	Notes in Text	Remarks
Kamara–Istron	25	35		Probably at Kalokhorio and the large site at Nisi and Priniatikos Pyrgos. Area known till recently as Nistrona.
Istron–Ketia	15	215	Shelter but no water	Probably promontory N. of Sitia, where M.P. 47, 48 says there is a good anchorage and shelter from N. wind.
Ketia–Dionysiades Islands	300	85	Two islands, harbour and water	
Dionysiades–Sammonion	120	75		

B. MODERN MAPS AND CHARTS, ETC.

These exclude maps published in books, such as Pashley's, Spratt's or Raulin's.

I.	H. Kiepert . . .	Creta	last edition 1907	1 : 300,000	This is undoubtedly the best map of Crete available. The method of showing the mountains leaves something to be desired and not enough heights above sea level are given. There are few mistakes in topography or orthography. It is greatly to be hoped that a new edition will be prepared.
II.	British War Office .	Crete	1905	1 : 300,000	An inferior version of Kiepert's map.
III.	Lt. W. D. Downes .	The Herakleion District	1907	1 : 100,000	This is a plane table survey covering the eparkhies of Malevizi, Topalti, Temenos, Pyrgiotissa, Kainouriou, Monophatsi and Pedhiadha. It is valuable as being the only

				readable contoured survey of any part of the island. It suffers, however, from the surveyor's ignorance of Greek, many of the names being unrecognizable.
IV.	Greek General Staff	Herakleion District Khania Soudha Bay	1 : 20,000 N.D.	Several sheets of this survey have appeared. It is a pity that such care and trouble as have obviously been given should not have been rewarded by better production.
V.	Capt. (Adm.) T. A. B. Spratt and others .		1853 onwards	The Admiralty charts are admirable for the coast, but since Spratt had not adequate facilities for surveying the interior of the island, a number of errors crept in which have been slavishly copied by later maps, including Kiepert. The triumph is Stetkhorio South East of Khania, which perpetuates a marginal note in the proof! The rendering of the mountains is unsatisfactory and again insufficient heights are given.

Admiralty Charts :

2536 A and B show the Western and Eastern parts of the island at 1 : 150,000. On A also are charts of Matala at 1 : 9000 and Sphakia 1 : 14560.

217 Grabusa 1 : 25,000, Rhethymnos 1 : 9100, Kutri (Phalasarna) 1 : 9100, Port Loutro (Phoinix) 1 : 9100.

1555 Anchorages near Cape Sidero 1 : 40,000.

			1658 Khania 1 : 9900, Suda Bay and Khania 1 : 36,900. 1904 Megalokastron, Candia or Herakleion. 2715 Khersonesos Bay 1 : 9100, Hierapetra 1 : 9100, Eremopolis Bay (Itanos) 1 : 5200. 2724 Sitia Bay 1 : 14600, Kaloi Limniones 1 : 14600, Grandes Bay (Palaikastro) 1 : 14600. 2850 Poros Bay, 1 : 11,600, Spina Longa Harbour 1 : 19,000. Agios Nikolaos 1 : 8000. 2982 Standia or Dia Island. Anchorages on South coast. 3691 Suda bay anchorage 1 : 9970. Megalokastro, Candia or Herakleion 1 : 12,500.
VI. Eleutheroudakis. .	No date	1 : 300,000	This map is a Greek version of Kiepert. It makes some startling raids into the province of the identification of sites, but it gives the position of more villages than any other map and at least it spells them intelligibly.
VII. *Α. Ι. Μπινάκις* . .	No date	1 : 300,000	Printed in Athens in the days of the Autonomy. It may well be the archetype of the above. Few physical features are given.

MEANING OF VARIOUS NAMES

The names of various *τοποθεσίαις* are often of great value in the discovery of sites. *Στὰ Ἑλληνικά* naturally raises the expectation of ruins even if not Hellenic. The following is a short list of the modern Cretan place-names most frequently found. All may have the diminutive '*ακι*' attached. Some are of considerable antiquity —the *Καλὸς Λάκκος* of the Olous-Lato boundary treaty still exists near Ellenika between Spina Longa and Agios Nikolaos.

Ἀμπέλι	Vineyard.
Ἀνάυλοχος	A steep-sided gorge.
Ἄσπα	A steep slope of disturbed earth.
Βίγλα or Βίγλαις (Latin vigil)	A look-out post or *Πρόβαρμα* (cf. *Κορακοβίγλα* = crow's nest) = *Ἐδίχτη*.
Βόλακας	A boulder.
Γαστριά, Βίσαλα[1] (Central Crete) *Κουρούπια* (West Crete) *Χαλίκια* (East Crete)	Sherds. *κεραμίδια* are tiles only.
Γοῦρναις or Γουρνιά	A trough.
Δέτης or Δέτι	A steep slope.
Ζάρμας or Ζάρωμας	A connexion. Used like *Σελλί* for a saddle between peaks in Central Crete. *lit.* a wrinkle.
Καβόυσι	Hollow in the rock kept filled with water by a spring.
Καμάρα	Arch or bridge.
Καμίνι	Lime pit.
Καμπαθοῦρα	Shallow pit (Ida district).
Κάστελλος Καστέλλι Κάστρο Καστρί	A fort. The first two may imply Venetian fortifications or even merely a hill strong by nature. The second two almost always imply early remains.
Λαγγός or Λαγγάδα also Λαγκός	An opening out, or small plain, in a gorge.
Λατσίδα . . . . . (East Crete)	A natural basin or hole in the ground = *Ταῦκος* in Ida district = *Λάκκος*.

[1] Often used as a place-name.

Λειβάδι	Meadow or field without stones.
Λογάρι	Treasure = *Μάλαμα* (West Crete) *Μπαρντά* (Apodhoulou).
Μάνδρα	Sheepfold (*στάνι* is unknown in Crete).
Μιτάτο	Cheese Dairy.
Μνῆμα, *Μνημεῖον*	Tomb. *ἄχλα* in Lasithi = *τάφος*.
Μουρί	Meeting-place.
Νομίσματα, *Παράδες*, *Χρήματα*, *Φώλαις* (Latin Follis *or* Arabic Fulus ?), *Μονέτα* (West Crete), *Κατρίναις* (East Crete)	Coins.
Παιζοῦλα	A terrace. (? *Τραπεζοῦλα*, a little table.) *τάφρος or τράφος* = a terrace wall.
Παπούρα	A hill or summit, not a peak.
Πλάϊ	Side.
Πόντα	A damp place (*ἐπήρε τσὴ πόντα* = he caught cold).
Ρουχούνη or *Ρούχουνας* (W. Crete *κάντουνα*)	A corner stone (Arabic rukhn).
Στέρνα	Cistern.
Τάπαις or Τάμπιαις	Slopes.
Τρόχαλοι, *Τροχάλοι*	A mound of stones cleared from the fields—a frequent sign of ancient walls below the surface.
Χαλέπα	A rocky slope.
Χωράφι	Field.
Φαράγγι	A gorge *qua* gorge.

Chapter II

A. THE NEOLITHIC PERIOD

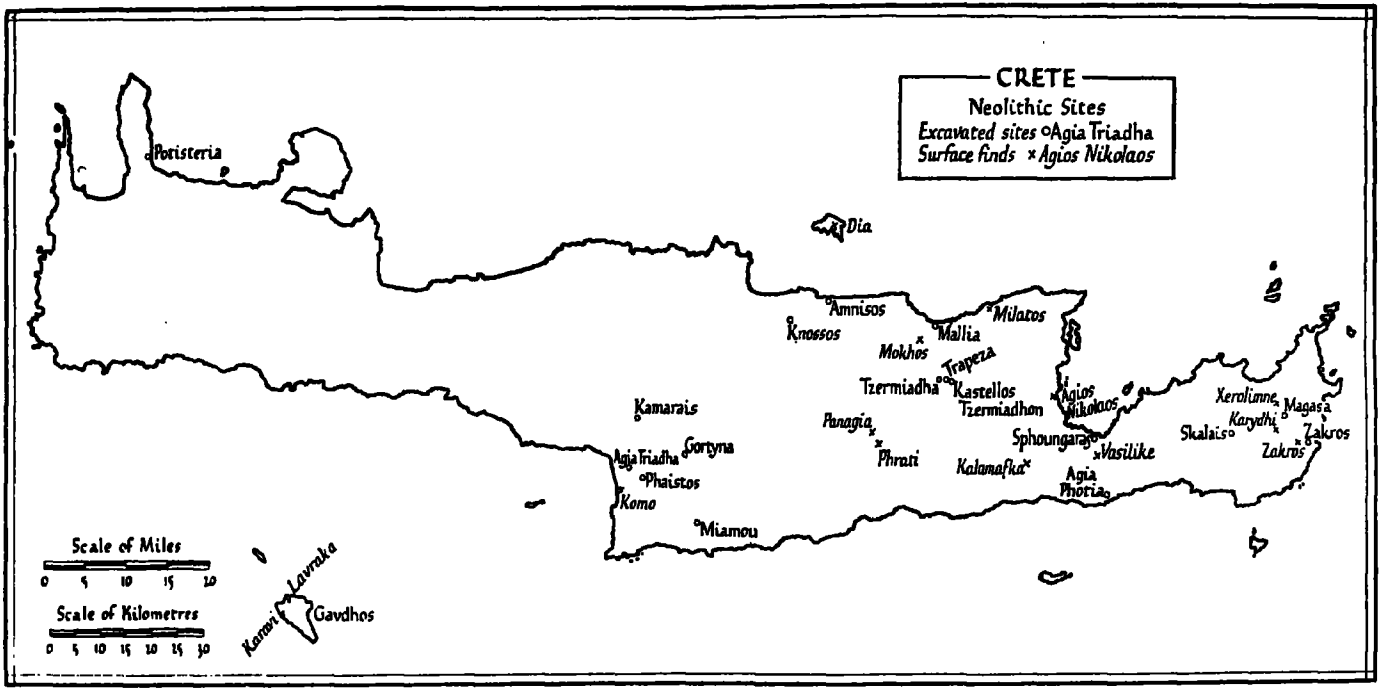
(*See Map 3*)

THE FULL extent of the Neolithic habitation of Crete is as yet undetermined. Remains [1] have been excavated at Potisteria, Kamarais, Knossos, Phaistos, Mallia, Trapeza and other sites near Tzermiadha in Lasithi, Agia Photia, Magasa near Palaikastro, Skalais near Praisos, Zakros and Sphoungaras near Gournia, as well as elsewhere, but it is certain that further discoveries await the explorer. Individual objects, indeed, such as stone celts, have already been picked up at various sites, mainly in the East end of the island, but these may well belong to the succeeding Sub-Neolithic Chalcolithic Period of E.M. 1. In any case, these sites are widely enough separated to show that the Neolithic inhabitants occupied, however sparsely, as wide an area as came later under the hand of the Bronze Age Minoans. The western settlements at Potisteria and Gavdhos we may perhaps take as unsuccessful exploratory settlements in the West. Probably the country was too wild.

With so few sites upon which to base an argument it would be unsafe to draw definite conclusions as to the places favoured as settlements by the folk of this period. It is, however, remarkable that, with the exception of Potisteria, Gavdhos, Amnisos, Dia, Komo, Mallia, and Sphoungaras, every settlement lies a good hour or more from the sea. The Lasithiote sites, as well as Magasa and Skalais, indeed, may be termed inland sites, while the preference for caves shown at Potisteria, Amnisos, Kamarais, Miamou, Trapeza, Sphoungaras, Magasa, Agia Photia, Zakros, and Skalais proves the uncertainty of life at that time (Pl. V, 1).

At Knossos alone are the earlier stages of Neolithic culture present, and the selection of Knossos in the centre of the

[1] References to the publications of the following sites will be found at the end of the chapter.


CRETE
Neolithic Sites
Excavated sites ○Agia Triadha
Surface finds ×Agios Nikolaos
Poristeria
Dia
Amnisos
Knossos
Mallia
Milatos
Mokhos
Trapeza
Tzermiadha
Kastellos
Tzermiadhon
Agios Nikolaos
Xerolimne
Magasa
Karydhi
Skalais
Zakros
Kamarais
Panagia
Sphoungaras
Vasilike
Agia Triadha
Gortyna
Phaistos
Phrati
Kalamafka
Agia Photia
Komo
Miamou
Scale of Miles
0 5 10 15 20
Scale of Kilometres
0 5 10 15 20 25 30
Kavo Lavrako
Gavdhos

MAP 3

North coast as the spot for one of the largest Neolithic settlements in Europe and the Near East is a problem very difficult of solution. As we shall see, although the early connexions here with Anatolia were strong, yet the only evidence we have of direct traffic with the outside world is with Egypt. We must therefore postulate either the indigenous nature of the inhabitants, which is impossible in view of the advanced stage of the earliest strata, or else their immigration or geographical separation from the rest of their kinsfolk at a very early date.

As we have said, at Knossos alone has a large Neolithic site been explored. It extends in fact even beyond the borders of the present Palace area and descends in some places to a depth of over 7 metres. Thus, when men first settled on this spot, they settled on a low knoll, overlooked by the surrounding hills, a knoll on which, so far as we know, there existed no spring, though the Kairatos stream runs close below. Although the coast nearest to them faces directly towards the Mainland of Greece and the Islands of the Aegean, their connexions were with Egypt to the far South and with Asia to the East.

The Neolithic deposit at Knossos can be divided into Lower, Middle and Upper Periods.[1] That some considerable degree of culture had been reached before the settlement was founded is proved by the advanced nature of both pottery and implements even in the lowest strata.

Lower Neolithic Pottery

'Lower Neolithic' occupied the first 2½ metres immediately above virgin soil in the West Court Test Pit. The pottery is hand-made, of coarse brownish clay burnished inside and out, for the most common shapes are open basins and bowls, though the presence of handles and fragments of narrower rims indicates that other shapes were used. No decoration has been found on any of these sherds. The incised ware characteristic of the next phase had evidently not come into use.

Middle Neolithic Pottery

The transition to 'Middle Neolithic' is gradual. From 2½ to 4 metres above virgin soil incision gradually makes its appearance and in the fifth metre a new technique appears, the filling of the incisions with a white chalky material.[2] At

[1] *P. of M.*, I, 35; *J.H.S.*, 1903, 158.

[2] Mention is also made, *P. of M.*, I, 36, of a red filling. I can at present only find one example of this. Deep Foundations SE. area of 'Prisons' (E. III, 6, 7th metre in Palace Museum). It is at any rate admittedly exceedingly rare.

the same time the surface of the unincised vases is sometimes rippled by means of a blunt instrument of bone drawn downwards from the rim. All the finer vases were carefully burnished. The clay being better sifted took a brighter polish, which together with the blackish surface distinguishes even the undecorated vases from those of the preceding period. In some cases, notably on one or two sherds from the South Propylaeum, it has a mottled appearance almost like that of the later E.M. Vasilike ware.

The commonest shapes are large open bowls and vases, small jugs, miniature cups, ladles and rectangular trays with partitions and sometimes with short legs. The wishbone handle was already in use as well as tubular handles, with both

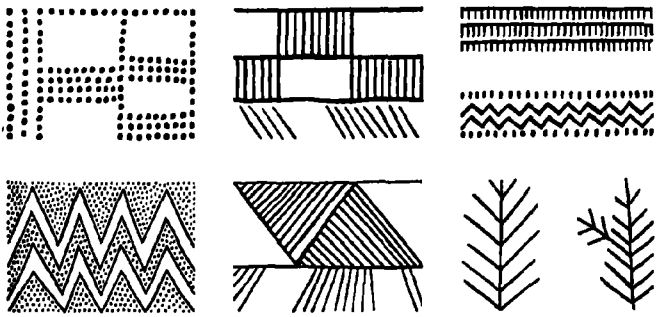


FIG. 1.—Patterns on Neolithic Pottery from Knossos

concave and straight sides, and ordinary strap handles. Many of the vases were sharply carinated.

As has been said, the decoration consisted of burnishing, rippling and incising. The chief incised patterns found are hatched triangles and rectangles, straight lines with short dependent lines, zig-zags running round below the rim, chevrons with a dotted field and rough geometric figures made out in dots. Two sherds, however,[1] seem to show an attempt to represent branches.

Middle Neolithic Figurines, &c.

The same decoration is often applied to the clay spools and whorls which occur frequently,[2] as well as to the rarer representations of birds and animals.[3] The human figure is found in statuettes, flat fiddle-shaped figures of clay which seem to

[1] *P. of M.*, I, Fig. 9. [2] Ibid., Fig. 10.
[3] Ibid., Fig. 11.

be peculiar to this period [1] and stumpy steatopygous figures squatting or sitting, which continue into the Upper Neolithic Period.[2]

Middle Neolithic Stone Celts

The stone celts, which are first found in the transitional stage between Lower and Middle Neolithic, continue unchanged into Upper Neolithic. They are of two types, one long and heavy, the other shorter and broader.[3] The stone maces are globular or slightly flattened at both ends. In this period the boring is begun from both ends and in some cases the resulting biconical hole is well marked. Obsidian cores were found in this stratum, showing that that stone was worked on the spot. Its source is uncertain but it is probably Melos or the island of Giale near Nisyros.

Middle Neolithic Shrine

To this period belongs a small deposit discovered at Phaistos.[4] Together with miniature vases of the class mentioned above, too small for use, was a female figure of the second type, a large piece of magnetic iron and a number of sea shells. This association of objects puts one in mind of the later shrines with their figures of the goddess and their votive sea shells.

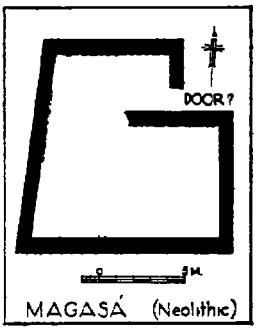


FIG. 2

Upper Neolithic Architecture

In the Upper Neolithic Period we are on firmer ground. Two houses at Knossos each showing two layers of occupation, and the rock shelter and house at Magasa, give us some idea of the architecture of the period.

The rock shelter is a mere overhanging ledge of rock with the front roughly walled in.[5] The house (Fig. 2) was of the 'but and ben' type, consisting of entrance room and an inner living room. Only one layer of large undressed blocks of limestone remains. The houses below the central court at Knossos [6] show an elaboration of this primitive system.

[1] *P. of M.*, I, Fig. 12, 1. They are, however, the forerunners of the Cycladic class.

[2] These are eventually no doubt descended from the steatopygous figurines of Upper Palaeolithic Art which had their original home in North Africa.

[3] *P. of M.*, I, Fig. 15*a*.

[4] Mosso, *Mon. Ant.*, XIX, 159; Pernier, *Festos*, I, 67, Pl. XI. Some of the sherds have the mottled appearance mentioned above.

[5] *B.S.A.*, XI, 261 ff.

[6] *P. of M.*, II, i, 7 ff.

There is an accretion of small rooms clustering round the main room (Fig. 3).

The clay floors often run under the walls dividing the rooms. These walls were formed of undressed blocks of limestone in a bedding of clay and pebbles. The general absence of openings for doors shows that a raised threshold was as common then as it is now. The upper part of the walls may well have been formed of sundried bricks. A feature of the house is

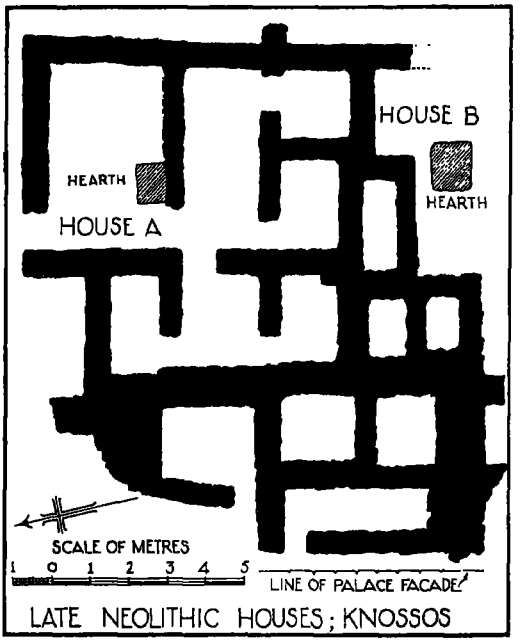


FIG. 3

a fixed hearth of clay and small stones either standing in the middle of a room or up against one of the walls. This type of hearth is well known in Asia Minor and Greece in the early Bronze Age. In Crete, however, save for two examples in M.M.I*a* houses at Mallia,[1] it disappears until the L.M.III*b* Period.

Upper Neolithic Pottery

The Late Neolithic pottery of Crete shows a falling off in technique, though the use of the potter's kiln results in a harder baked reddish surface, occasionally covered with a

[1] Demargne, *B.C.H.*, 1932, 76. He makes a strong plea for the fixed hearth being a regular feature until this latter period.

wash which was afterwards burnished. Incision and filling are dying out and the general appearance of the pottery is dull in the extreme. New shapes, however, appear in the chalice, which is to be so typical of E.M.I,[1] and a sharply carinated bridge-spouted jar[2] which foreshadows a long series of Minoan shapes. The pottery of the two levels in the houses at Knossos was indistinguishable except for a further decline in the art of burnishing, a slightly lighter coloured surface and an almost complete disappearance of incision.

The whole period seems to have been a short, transitional one. The deposit for all its two floor levels was only half a metre deep, and though this might be explained in the present case by the sweeping away of some of it during the formation of the central court, yet a Test Pit in the better-preserved area below the South Propylaeum confirms the shallow depth of the deposit.

The stone implements show no decline in technique, the celts are as fine and varied as ever, the obsidian finely flaked. But copper was coming in, or at any rate imported, for in the lower stratum of one of the houses, in circumstances which precluded it from being an intrusion, was found a copper axe-head.[3]

A remarkable local variation of the Late Neolithic Pottery must here be mentioned, although no more than a preliminary study has been made. In the cave of Trapeza in Lasithi a single pure stratum was discovered which among sherds of a normal Neolithic type produced an individual style. The pottery is of a dark, mottled type, red flecked with black. The sherds seem mainly to belong to cooking-pots, some of them of the two-storied type. But the most peculiar feature lies in the faces which are modelled on the rim and which seem to have their origin in a stylization of the tubular handles, the handle itself becoming a nose, the hollows behind it the eyes, while the mouth is added. Further decoration consists of a vertically applied strip of clay roughly impressed at intervals to form a kind of ' tress ', which is itself later stylized into the well-known rope pattern.

Neolithic Foreign Relations

The foreign connexions of the period as a whole seem to be mainly with Asia Minor, although the presence of fragments

[1] *P. of M.*, II, i, Figs. 3*m*, 4. [2] Ibid., II, 1, Fig. 3*x*.
[3] Ibid., II, 1, Fig. 3*f*.

of Egyptian stone vases, usually too small to identify,[1] an almost carinated mace-head,[2] and the metallic shapes of the chalices mentioned above which can be compared to the miniature copper vases found in the Tomb of Khasekhemui,[3] prove that intercourse with Egypt had already begun. But the figurines have strong Asiatic affinities [4] and the fixed hearth points in the same direction. Of the pottery it is more difficult to say, but striking likenesses have been observed in the early ceramics of Anatolia,[5] while at Megiddo the earliest pottery is indistinguishable from the Middle and Upper Neolithic strata at Knossos, except for the absence of incision, and at Byblos some of the pottery even shows this feature together with white filling. Frankfort,[6] however, would connect the strongly carinated shapes as well as the decoration with Danubian wares.

This, taken in conjunction with the uninterrupted continuation of the culture into the next period when Anatolian influence is more marked, inclines one to the belief in a very early immigration from South-West Anatolia. It is unfortunate that in the graves excavated in Lasithi in 1937, but scanty human remains survived.[7] Anthropology therefore cannot help us.

Neolithic Chronology

As to the dates to be assigned to the period certainty is impossible. There is reason to put the beginning of E.M.I

[1] But cf. *P. of M.*, II, 1, Fig. 6, a small limestone vase hollowed out with a tubular drill. A shape characteristic of the protodynastic period, cf. Petrie, *Royal Tombs at Abydos*, II, Pl. LI, 190. Many of the other fragments, however, are of the variegated stones, the use of which tended to die out in the protodynastic period. Professor Wace suggests to me that as in Early Cycladic I, stone vases are the concomitant of stone axes and stone figurines, so some of these Cretan vessels may be locally made. The stone, however, is Egyptian and we cannot certify any stone vase as being of Minoan fabric until E.M.II.

[2] *P. of M.*, II, 1, Fig. 3*k*.

[3] Petrie, *Royal Tombs*, II, Pl IXA.

[4] *P. of M.*, I, 49 ff., Fig. 13. [5] *Liv. Annals*, X, 32 ff.

[6] *Studies*, II, 55. The faces on the pottery from Trapeza described above, discovered, of course, since Frankfort's work, have too obvious an origin on the spot to be related to the Trojan anthropomorphic vases of later date.

[7] That the cave at Trapeza was inhabited in Neolithic times and not used as a burial-place until E.M.I is clear from the absence of human bones in the one pure stratum and the prevalence of cooking-pots. The burial-places were, as one might expect, small rock shelters.

somewhere about the date of the IInd Dynasty of Egypt, and fragments of what seem to be Late Predynastic vessels have been found in the Upper Neolithic strata of Knossos. But we must remember not only that stone vases are very dangerous evidence, for they may remain in use for centuries after they have been made,[1] but also that with them were found the fragment of a small kohl pot of early dynastic date and the mace-head, which is also protodynastic, and that Egyptian analogies to the chalices are as late as the IInd Dynasty.

It would be dangerous, therefore, to pin our faith to any date much earlier than 3000 B.C. for the end of the Neolithic Period.[2]

For the duration of the Stone Age we have no good evidence. Sir Arthur Evans himself is sceptical as to the value of speculating on the length of time taken for the deposit to form.[3] He has taken the E.M. and M.M. strata as lasting for 1,800 years—from 3400 B.C. to 1600. This occupies below the West Court 2·82 metres of deposit, giving for the 8 metres of Neolithic deposit a space of over 5,100 years. From this he had deducted 10 per cent. for the possibility of the wattle and daub constructions having favoured a higher rate of accumulation and suggested the possibility of the original settlement dating back to about 8000 B.C. As we have seen, however, the end of the period cannot be with safety put earlier than 3000 B.C., and the depth of the stratum seems to be 6·50 metres, which brings it down to about 6700 B.C. In addition, the Neolithic inhabitants, if they resembled their modern descendants, were an untidy race. The rise in floor levels owing to the deposit of filth which accumulates to-day in a peasant's cottage is often as much as a centimetre a year,[4] and while, as Sir Arthur says, speculations can only have a relative value, it is exceedingly doubtful whether we can put back the first arrival of the Neolithic settlers more than a few centuries before 4000 B.C.

[1] Protodynastic vases were found at Mycenae in a L.H.II tomb and at Asine in a tomb of L.H.III date. A Middle Predynastic vase was found in use in a house at Tell el-Amarna.

[2] In these pages the generally accepted dates for the early dynasties are employed, but see note on the chronological table, p. 300.

[3] *P. of M.*, I, 34.

[4] We have seen how little difference in culture there was between the deposits on the upper and lower floors of the late Neolithic houses at Knossos, and these were 25 cm. apart.

SITES WHERE NEOLITHIC REMAINS HAVE BEEN FOUND

(*a*) *Excavated Settlements*

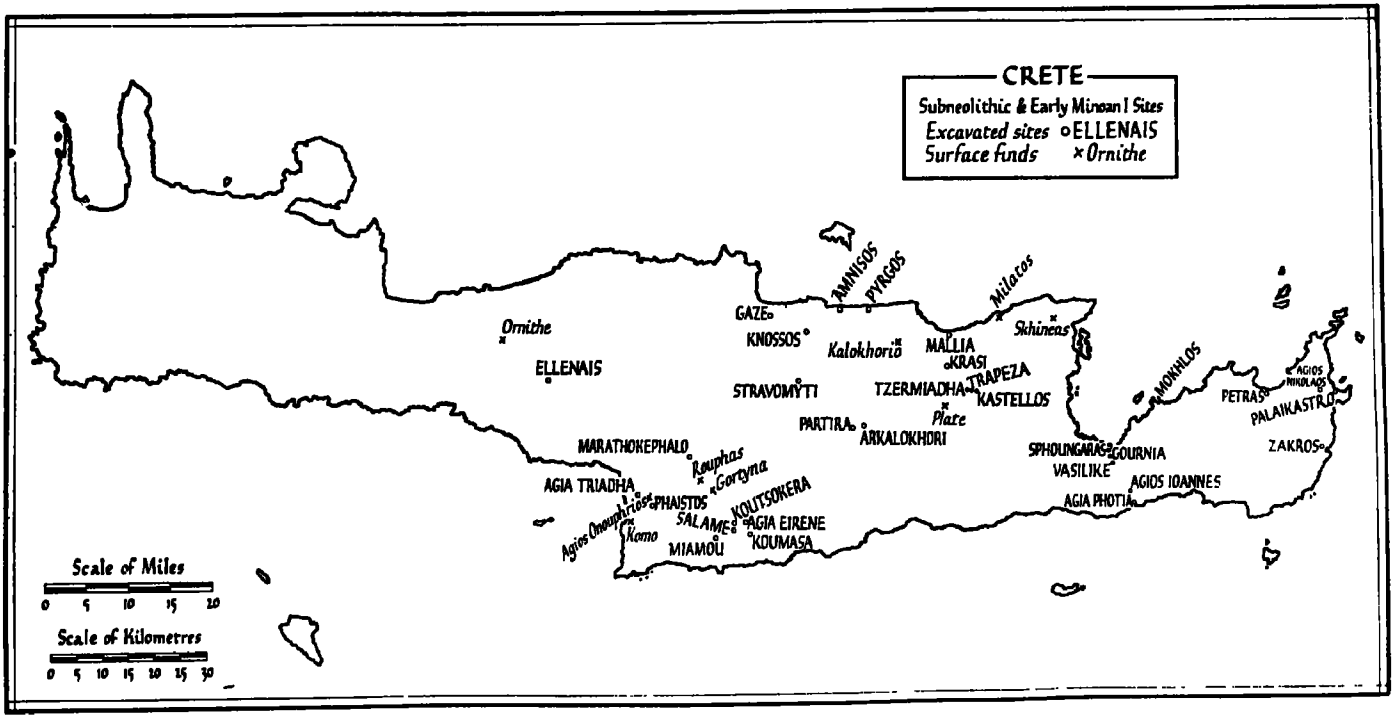
AGIA PHOTIA .	Rock shelter	One vase. Hawes. *Gournia*, 56. Site is 35 m. W. of village near hamlet of Pherma. 2½ hr. E. of Hierapetra.
AGIA TRIADHA .	Unpublished	Sherds. Unpublished.
AMNISOS . .	Cave of Eileithyia	Sherds. Marinatos, *Πρακτικά*, 1929, 95. Site is on the hill above the coast, W. of Karteros village.
GORTYNA . .	Deposits .	Sherds from the Acropolis and from Volakais near by. Pace, *Annuario*, I, 372.
KAMARAIS . .	Cave . .	Two sherds from the original find. Dawkins, *B.S.A.*, XIX, 12. Site lies nearly 2 hr. above Kamarais village on Mavrokorphe.
KASTELLOS TZERMIADHON	Rock shelters	Burials excavated 1937 by the writer.
KNOSSOS . .	Houses .	Architectural and domestic finds. Evans, *P. of M.*, I, 32; II, i, 1. Pottery: Mackenzie, *J.H.S.*, 1903, 158. Stratum extends all over the palace area. Houses excavated below the Central Court.
MAGASA . .	Rock shelter and house	Architectural and domestic finds. Dawkins, *B.S.A.*, XI, 260. Site lies 1½ hr. SW. of Palaikastro.
MALLIA . . .	Stratum. .	Sherds. Chapoutier-Charbonneau. *Mallia*, I, 18–20, 47. Stratum below Quarter V of the Palace. *B.C.H.*, 1928, 363.
MIAMOU. . .	Cave . .	Vases, sherds, &c., from lowest level with fireplaces. Taramelli, *Mon. Ant.*, IX, 303. *A.J.A.*, 1897, 287. The cave is below a house in the village.
PHAISTOS . .	Settlement .	House and sherds, &c., below Western section of the palace. Pernier, *Mon. Ant.*, XII, 22. Mosso, *Mon. Ant.*, XIX, 159. Pernier, *Festos*, 67.
POTISTERIA . .	Cave of Ellenospilo	Vases and sherds 100 m. in from the mouth. Marinatos, *Mitt. über Höhlen und Karstforschung*, 1928, Fig. 3. The cave is ½ hour's sail N. of Gonia Monastery on the E. side of the Diktynnaian promontory.

SKALAIS . .	Cave . .	Sherds. Bosanquet, *B.S.A.*, VIII, 235. Cave lies on N. side of Praisos plateau.
SPHOUNGARAS .	Rock shelter	Sherds. Hawes, *Sphoungaras*, 46, and *Gournia*, 56. Deposit cleared out of the cave which lies between Gournia and the sea.
TRAPEZA . .	Cave . .	Vases and sherds. Excavated by writer in 1936. Cave lies 10 min. above Tzermiadha. *A.J.A.*, XL, 371 ; *Arch. Anz.*, 1936, 162. Deposit near by excavated in 1937.
TZERMIADHA .	Cave burial	At Skaphidhia, excavated by the writer, 1937.
ZAKROS . .	Cave . .	Two sherds. Hogarth, *B.S.A.*, VII, 142. Cave is in gorge above Kato Zakros.

(*b*) *Surface Finds*

(Note : the axes may belong to the succeeding E.M.1 period).

AGIOS NIKOLAOS	Stone axe in the Candia Museum.
DIA . . .	Sherd from walled field above and NE. of Agia Pelagia bay. Found by writer 1935.
GAVDHOS . .	Sherds and obsidian from Karavi bay and Lavraka. Levi, *Art and Archaeology*, 1927, 176 ff.
KALAMAFKA .	Stone axe in the Candia Museum.
KARYDHI . .	Stone axe in the Candia Museum.
KOMO . . .	Sherds picked up by R. W. Hutchinson, 1937.
MILATOS . .	Stone axes in the Candia Museum from spots called Dhrakona and Kountouro. Xanthoudides, *Ἀρχ. Δελτ.*, IV, *Παρ.* 10.
MOKHOS . .	Vase in peasants' hands. From Edhikte or Anemoskia, a summit ½ hr. E. of village or from Mouri by the lake below the latter.
PANAGIA . .	Stone axe from Kophina. Levi, *Annvario*, X–XII, 26.
PHRATI . .	Stone axe from Prophetes Elias. Ibid., 40.
VASILIKE . .	Vase in the Candia Museum and sherd picked up by writer from the Kephala.
XEROLIMNE .	Stone axe in the Candia Museum. This may come from Magasa, q.v., which is not far away.
ZAKROS . .	Stone axe from Skourokephalo by the new church in Apano Zakros. Bought by R. W. Hutchinson, 1936, for the Candia Museum.


CRETE
Subneolithic & Early Minoan I Sites
Excavated sites ○ ELLENAIS
Surface finds × Ornithe
Ornithe
ELLENAIS
GAZE
KNOSSOS
AMNISOS
PYRGOS
Kalokhorio
MALLIA
Milatos
Sklneas
KRASI
TRAPEZA
KASTELLOS
STRAVOMYTI
TZERMIADHA
Plate
PARTIRA
ARKALOKHORI
MOKHLOS
PETRAS
AGIOS NIKOLAOS
PALAIKASTRO
ZAKROS
SPHOLUNGARA
GOURNIA
VASILIKE
AGIOS IOANNES
AGIA PHOTIA
MARATHOKEPHALO
Rouphas
Gortyna
AGIA TRIADHA
PHAISTOS
KOUTSOKERA
SALAMES
AGIA EIRENE
Komo
MIAMOU
KOUMASA
Scale of Miles
0 5 10 15 20
Scale of Kilometres
0 5 10 15 20 25 30

MAP 4

B. THE EARLY MINOAN PERIOD

I. EARLY MINOAN I (E.M.I)

(See Map 4)

The First Early Minoan Period is in the nature of a transition from the Neolithic to the full Copper Age of Early Minoan II. The earlier stages, indeed, are rather to be styled Sub-Neolithic, a stage which seems to have lasted for a considerable period in the centre of the island.

The balance of power and the progressive force of culture has swung away to the East and it did not return to the centre for many years.

Ten sites in the East have been at least partially excavated, while from two more come chance finds. Eight excavated sites lie in the South, while four more await the excavator. In the centre of the island are twelve excavated sites and chance finds from four more. One excavated and one unexcavated site lie to the West of Ida. In contrast to the Neolithic Age the settlements seem to be chosen for their accessibility from the sea. The exceptions are either sacred or sepulchral caves such as Arkalokhori and Stravomyti, or where a flourishing population has expanded along an easy route as in the Messara, and in Lasithi.

E.M.I Architecture

Of the architecture of the period we know practically nothing. At Knossos the houses were swept away to make room for the Central Court of the first Palace. No walls survived in conjunction with the earliest deposit at Vasilike. The scantiness of the E.M.I deposits in the Messara forbids us to attribute to this period the building of any of the circular tombs. At Mokhlos alone were found traces of rectangular stone houses which seemed to be connected with the small E.M.I deposit in the town.

E.M.I Graves

To compensate for this, however, a greater number of graves are found. These occur in rock shelters and caves at Miamou, Trapeza, Zakros, Sphoungaras, Agia Photia, and Agios Nikolaos near Palaikastro. At the last-named site an examination of the human remains was possible, resulting in the discovery that the skulls were all of a pronounced dolichocephalic type, with long narrow faces, and that the average

height for a man was 5 feet 2 inches, for a woman 4 feet 11 inches.[1]

E.M.1 Pottery

The pottery is still hand-made and begins to show a reddish core, perhaps due to increasing skill or to the use of the potter's oven. The main general difference between it and the pottery of the preceding period is that the burnishing

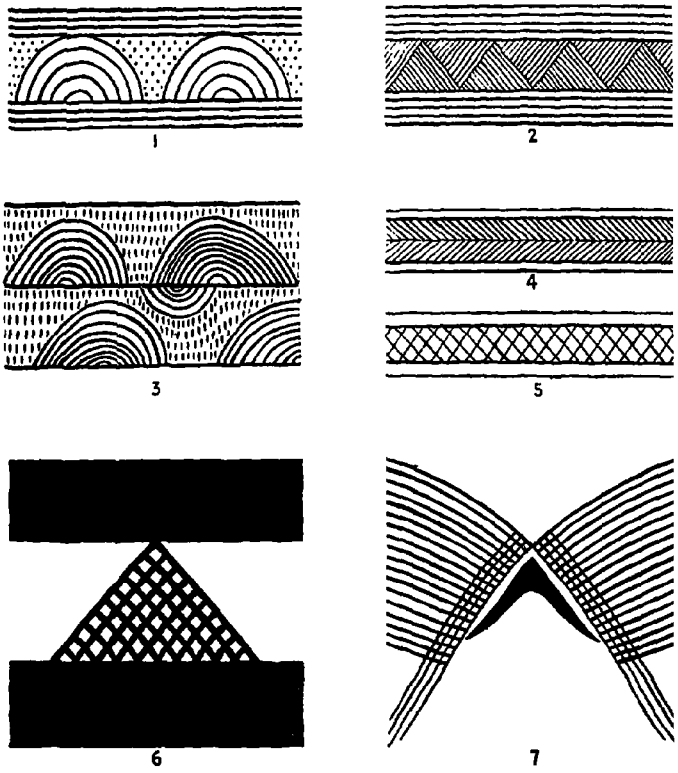


FIG. 4.—Patterns on Early Minoan I Pottery

of the whole surface of the vase dies out, its place sometimes being taken by a lustrous black slip.[2] Incision is revived, but the filling of the pattern with white is never found.

The pottery varies considerably in different areas.

1. *Central Crete.*—In this part of the island the old Neolithic tradition dies hard. Indeed, true E.M.1 as opposed

[1] *B.S.A.*, IX, 347.

[2] *J.H.S.*, 1903, 165.

to Sub-Neolithic must have been a very short period. At Knossos the most common Sub-Neolithic shapes seem to be open bowls, ladles, handleless cups, hemispherical or with a base, and pedestalled bowls. Slightly later come a few fragments of the burnish technique described below, and with them several fragments which have stripes in chalky white paint or more rarely in crimson. This perhaps was a revival of Neolithic tradition. Still fewer have a dark on light technique, and it is perhaps permissible to regard these as imports from the East.[1]

At Pyrgos and Arkalokhori the material is richer. Unfortunately neither site is stratified and both contain later pottery. It is therefore on stylistic grounds that the attributions must be made. We see here an advance on the Sub-Neolithic shapes of Knossos in the tall grey chalices with a burnished decoration perhaps representing grained wood (Pl. IX, 1, *c*).[2] One of these has a crinkly rim suggesting a metallic origin, or more probably the irregular rim of Cretan gourds. This shape and fabric are peculiar to the centre of the island, though burnish decoration has been found in a settlement at Ellenais near Amari West of Ida.[3]

Suspension pots come in with a high neck imitating gourds and with their handles pierced vertically as opposed to the horizontal piercing of the Neolithic Age. These, too, have a grey surface and are frequently decorated with incised patterns (Pl. IX, 1, *a* and *b*).

In this part of the island the incision, while more elaborate and covering more of the vase than in Neolithic times, is careless and consists mainly of thin chevrons divided by vertical lines or of rough wedge-shaped dots. Often the vase looks as if it had been merely scratched by a child, so random and irresponsible is the decoration.

The painted ware from Pyrgos (Pl. IX, 2, *a*) is entirely dark on light. It seems to correspond more to the painted ware of

[1] The paint approximates more to the reddish-brown lustre of the East than to the clear matt red of the South. Evans, *P. of M.*, I, 63, quotes Mackenzie as to its being the first appearance of true glazed technique in the Aegean.

[2] *P. of M.*, I, 69, where the shape is eventually derived from a wooden bowl with withy handles set on a stand. Hazzidakis, *B.S.A.*, XIX, 39, thought the decoration was an irregular spiral. Frankfort, *Studies*, II, 88, sees in it a rough geometric design, but it seems too irregular for that.

[3] *J.H.S.*, 1932, 255.

the South next to be described than to that of the East. The shapes, however, betray some connexion with the East in the beaked jugs and the comparatively elaborate variations of them. The paint itself, too, corresponds more in tone to that of Eastern Crete—though the bad condition of many of the vases may be responsible for the darkening of the clear red in use in the South.

2. *Southern Crete.*—The grotto at Miamou [1] seems to provide us with the only definitely Sub-Neolithic pottery in this part of the island. The most interesting shapes are a two-handled carinated bowl and a square-mouthed two-storied jar, while an incised suspension pot shows the transition to E.M.I proper.

The E.M.I pottery is still mainly of grey clay, but the shapes are distinctly in advance of those found in the North and centre of the island. Suspension pots are common but with a short collar, not with the long bottle neck of the North. Some are placed on a tall base and in one case from Koumasa are actually nested together to form a kind of kernos.[2] One from Agios Onouphrios is fitted with a small cap.[3]

Pots with the burnish decoration of Central Crete are very rare and are probably imported.[4] Incised decoration is confined to dots covering the whole body of the vessel, diagonal lines in bands round the body and occasionally roughly cut concentric semicircles resting on a line encircling the body, the spaces filled with dots (Pl. IX, 1, *h-j*).

The painted decoration is best seen on the well-known jug from Agios Onouphrios [5] (Pl. IX, 2, *b*). The deposit here was unstratified, but the date of this vase is clearly shown by its round bottom, a convenient mark of distinction between E.M.I and E.M.II jugs. The matt paint of a clear red runs in thin vertical and diagonal stripes over the body. The stripes narrow down at the end, giving a rather scrappy appearance to the vase. This feature is also seen on sherds from Phaistos, where the ends of the lines have almost the appearance of bunches of grass.[6] Little effort seems to have been made to evolve a definite pattern.

[1] *A.J.A.*, I, 287.
[2] *V.T.M.*, Pl. XXV, 4194, but Evans, *P. of M.*, I, Fig. 43*c*, considers it E.M.II–III ; it is, however, indistinguishable in fabric from the rest.
[3] *P. of M.*, I, Fig. 23.
[4] Kutsokera, *V.T.M.*, 75.
[5] *P. of M.*, I, Fig. 25.
[6] Pernier, *Festos*, I, 115 ff, Pl. XII.

Such cross-hatching as occurs seems to be quite accidental. This painted decoration in the South in fact gives much the same impression of irresponsibility as the contemporary incised decoration of Central Crete.

3. *Eastern Crete.*—In this part of the island also we seem to leap almost direct into the E.M.1 Period. The only pottery which can be called Sub-Neolithic for certain is that found at Agios Nikolaos, near Palaikastro, in a rock shelter containing many burials.[1] The most typical shape was a two-storied suspension pot with a tall horned cap which could be tied on to it (Pl. IX, 1. *f*). This shape recalls the Sub-Neolithic deposit at Miamou.

Another deposit, however, which must be placed at the very beginning of E.M.1 proper, if indeed it is not actually Sub-Neolithic, occurred below Tomb V at Mokhlos.[2] Here rough clay ladles continue the Neolithic tradition. There are hemispherical cups and ringstands. No decoration was found, the vases being of coarse red clay sometimes covered with a red wash and sometimes pared into shape with an instrument which has dragged open the clay, leaving irregular holes on the surface. This feature occurs also on several sherds from the gulf of Mirabello now in the British Museum.[3] The particular interest which attaches to this group, however, is due to the presence of what appears to be a very primitive form in clay of the ' Horns of Consecration ', which play so large a part in later Minoan worship. The whole group indeed may well be votive.

Other sites, however, show no Sub-Neolithic characteristics. At Gournia, Vasilike, Zakros, Palaikastro, Mallia and Krasi the E.M.1 Period springs into full flower. Round-bottomed jugs are found frequently painted (Pl. IX, 2, *e*). The decoration is more carefully done than in the centre or South, the semi-lustrous reddish-brown paint being laid on to form ' double axe ' or ' butterfly ' patterns.[4] Carefully hatched triangles are found on pedestalled suspension pots which are also ornamented with bands of paint round neck and foot (P. IX, 2, *c* and *d*). These suspension pots, like those in the South, have a short neat neck. They are frequently decorated with incised patterns which show that the makers

[1] *B.S.A.*, IX, 340. [2] *Mochlos*, 92.

[3] *B.M. Cat.*, 410. In return we get an imitation of Southern painted patterns in burnish at Arkalokhori. *B.S.A.*, XIX, Fig. 6*b*.

[4] e.g. *Gournia*, Pl. A, 3.

had a better eye for design than those in the centre or South (Pl. IX, 1, *d*, *e* and *g*). Neat concentric semicircles appear, the background filled with dots. Even bands of herring-bone, chevrons or cross-hatching run round the body of the vase.[1]

The impression we get is that the makers of these vases were working on an old tradition to which they had been trained. Since the Neolithic ware of the district is scanty and undecorated at that, and since we can hardly assume that the technique is copied from the centre or South of the island, from which the East differs so much and which it outstrips in every way, we must look abroad for these new influences.

*E.M.*1 *Tools*

A fragment of copper occurred in one of the vases from the votive deposit at Mokhlos. This, however, is not enough to prove more than an acquaintance with metal, since, as we have seen, a complete axe-head of copper was found in a pure stratum in one of the Upper Neolithic houses at Knossos, an obvious import. True the forms of some of the daggers in the earlier part of the succeeding period point back to a more primitive ancestry, but we have no proof that that ancestry is Cretan. Copper tools or weapons have yet to be found in an E.M.1 stratum. Meanwhile, we may take it that the ordinary implements, whether tools or weapons, continue to be of the stone and obsidian types which are found in such quantities in the Sub-Neolithic strata at Knossos and which differ in no way from those in use during the Later Neolithic Period.[2]

*E.M.*1 *Figurines*

The human figurines differ little from those of the Neolithic Period. Stone, however, tends to become the more usual material.[3] One class adheres to the more upright steatopygous type already described, while another approximates to the stylized Cycladic figurines. As Sir Arthur Evans has pointed out, more interest seems to be taken in the face, which in one case from Central Crete is carefully rendered.[4]

[1] An obvious imitation of this type of decoration was found at Knossos in the 1st metre of a test pit on the E. side of the NE. hall (K., II, 5, in the Palace Museum). This had bands of concentric semicircles both standing on and depending from a central line. They are placed so as to overlap each other and give the impression of a rough spiral. The technique is too rude to suppose it was imported.

[2] As said above, p. 35, all the stone celts from these sites may be E.M.1.

[3] *P. of M.*, I, 64.

[4] Ibid., I, Fig. 13, 20.

It is noteworthy that every example which can be assigned to E.M.1 comes from the centre of Crete, with one exception, which is said to have been found at Gortyna.[1]

E.M.1. Seals

As for seal stones, we are unfortunately compelled to rely on stylistic evidence alone. Such seals as are attributed to this period are large, conical or three-sided and made of steatite. Their decoration is very primitive and consists of roughly drawn pictographs in which distorted human figures predominate.[2] On one example we seem even to have a proto-Minotaur.[3]

E.M.1 Foreign Relations

The foreign relations may be divided into two classes, direct and indirect. Of the direct influences Anatolia plays the most important part. The beaked jug points in that direction, but more significant is the fact that the handle is thrust through the wall of the vase and emerges on the inside not only in Anatolia but also in E.M.1 Crete and indeed all over the Aegean.[4] The low-collared suspension pot may also have a similar origin.[5] The most important sites of pure E.M.1 as opposed to Sub-Neolithic, as we have seen, lie in the East of the island, where in contrast to the Neolithic remains the settlements are usually chosen for their harbours, or at any rate for their accessibility to the sea. We have seen that the eastern end of the island steps almost without a break into the E.M.1 Period, and it is difficult to account for these phenomena in any other way than by assuming an actual wave of immigrants from South-Western Asia Minor.

Now, as we have seen, the centre of Crete remained some considerable time in a Sub-Neolithic stage, while the East had progressed to true E.M.1. It is therefore not remarkable that at the same time as Anatolian influences begin to come in from the East, the centre should also betray connexions with the same culture but at second hand—through the Cyclades which it faces. The bottle-necked suspension pots found at Pyrgos and Knossos are closely paralleled even in the incised decoration by bottles from Antiparos and elsewhere. Perhaps it is in the Cyclades also that the origin of the circular incised vase in grey clay from Patema near Palaikastro must

[1] Ibid., I, Fig. 13, 8.
[2] Ibid., I, 68.
[3] *Scripta Minoa*, I, 118.
[4] See Frankfort, *Studies*, II, 86, for references.
[5] *Studies*, II, 87
[6] Cf. *B.M. Cat.*, 309.

be sought.[1] Cycladic influence, however, is slight. It is not until E.M.III that it becomes really strong.[2]

Since it is on the Egyptian evidence that we rely for positive dating, it is particularly important that it should be scrutinized thoroughly. As is to be expected, such evidence as we may allow comes from the South and centre of the island. In Neolithic times Knossos, as we have seen, had some connexion with Egypt, and in the South the harbour town of Komo, through which undoubtedly the later trade passed, was already in existence in E.M.I.[3] It is therefore disappointing in the extreme that no E.M.I stratum yet excavated has produced any datable Egyptian object. A syenite vessel of the type common in the first two dynasties was found on the borders of the Neolithic and Sub-Neolithic clay deposit in the South Propylaeum.[4] But it was not in that deposit.[5] Similarly other stone vessels have been found dumped in the unstratified deposit North and North-West of the Palace. These presumably came from the E.M. strata swept away to form the Central Court in M.M.I, but to which E.M. period they belong it is impossible to say. They include fragments of two hornblende porphyry bowls of Middle Predynastic type and another of a Ist or IInd Dynasty type.[6] Similarly unstratified was the half of a diorite mace-head of Late Predynastic date.[7] We cannot allow these as evidence. Hard stone vases are used for hundreds of years after their manufacture, as we may see from the occurrence of Predynastic vases in late tombs at Mycenae and Asine, at Tell el-Amarna in use in a house of the XVIIIth Dynasty and at Venice to-day in St. Mark's.[8] Although, then, the Minoan was by E.M.II a maker of stone vases of a very high order and was therefore less likely to treasure foreign imports, no E.M.I stone vases have come to light, and in many of the cases above mentioned

[1] *B.S.A.*, Sup., Fig. 2.

[2] Aberg, op. cit., 242, would make Pyrgos and Krasi practically Cycladic colonies, but it seems more probable that they are examples of branches from a parent stock common to Crete and the Cyclades which happen to have developed in the same way. Ellenais, where similar pottery exists, is away to the West of Ida, and close to Arkalokhori where 'Pyrgos ware' is found lies Partira with its tall-capped suspension pots like those of Agios Nikolaos.

[3] *P. of M.*, II, 88.

[4] Ibid., I, 65; *B.S.A.*, IX, 98; cf. Petrie, *Meydum and Memphis*, III, Pl. XIX, 7. It is certainly not Predynastic.

[5] *P. of M.*, II, 30, 31.

[6] Ibid., I, 65.

[7] Pendlebury, *Aegyptiaca*, No. 24.

[8] Ibid., 3.

these vases may have been imported in Neolithic times. They would have given us a *terminus ad quem* if only they had been stratified, but that is all.

This being so, we have still the possibilities of the artistic influence exercised by Egypt on Crete. But in this respect we flounder deeper into the morass both in this and the next period when such influence as is recognizable on seals from Central Crete and figurines from the Messara seems to be purely predynastic. In E.M.I the seal stones seem to show the influence of a class of late predynastic cylinder and prism seals in the representation of men and monsters. These types in Egypt, however, go back to Mesopotamian origins, and it is possible that in this case the tradition came direct from Asia with no Egyptian transmission.[1]

E.M.I Chronology

We are therefore unable to date with certainty the Sub-Neolithic and E.M.I Periods. Fortunately, as we have seen, the end of the true Neolithic Period comes some time in the Ist or IInd Dynasty,[2] and, as we shall see, there is some evidence to make E.M.II contemporary with the IVth–VIth Dynasties. Further than that we cannot go.

SITES WHERE SUB-NEOLITHIC AND EARLY MINOAN I REMAINS HAVE BEEN FOUND

WEST CRETE

(a) Excavated Site

ELLENAIS AMARIOU	House . .	Vases. Marinatos, *J.H.S.*, 1932, 255. The excavation has been filled in again. It lies N. of the village.
	Cave . .	Sherds probably from burials. Marinatos, *Arch. Anz.*, 1932, 77; 1933, 295. Cave lies NE. of the village.

(b) Surface Finds

ORNITHE . . .	Stone axes in the Rhethymnos museum from the site at Tabiais, E. of the village. Ornithe is on the S. slopes of Mt. Vrysinas, S. of Rhethymnos.

[1] *P. of M.*, I, 68.

[2] Is it possible that the Egyptian influences which have been seen in the Messara (Frankfort, *Studies*, II, 96; *P. of M.*, II, 22 ff.) are the result of refugees not from Menes' conquest of the Saite kingdom in the North-Western Delta but from that of Khasekhemui.

CENTRAL CRETE

(*a*) *Excavated Sites*

AMNISOS . . .	Cave . .	Vases, &c., from burials in Eileithyia cave. Marinatos, *Πρακτικά*, 1929, 95 ; 1930, 91.
ARKALOKHORI . .	Cave . .	Vases, &c., probably from burials. Hazzidakis, *B.S.A.*, XIX, 35. Cave lies under summit of Prophetes Elias Hill.
GAZE	Pit . . .	Sherds. Hazzidakis, *Ἀρχ. Δελτ.*, II, *Παρ.* 23.
KASTELLOS TZERMIADHON . . .	Settlement .	Traces on the summit. Excavated by the writer, 1937.
KNOSSOS . . .	Stratum. .	Vases, &c. Evans, *P. of M.*, I, 56. Remains of settlement exist all over the Neolithic stratum, particularly in the West Court and round the South Propylaeum.
KRASI	Deposit .	Vases from earliest deposit by built tomb. Marinatos, *Ἀρχ. Δελτ.*, 12, 102. The tomb is above the village to the SE.
MALLIA	Deposit .	A few sherds. Chapoutier, *Mallia*, I, 48 ; *B.C.H.*, 1928, 367.
PARTIRA. . . .	Tomb . .	Vases from fissure in rock. Marinatos, *B.C.H.*, 1931, 517.
PYRGOS	Cave . .	Vases from burials. Xanthoudides, *Ἀρχ. Δελτ.*, 1918, 136. Cave lies on a headland E. of Nirou Khani.
STRAVOMYTI . .	Cave . .	Sherds from excavations of 1898. Evans, *P. of M.*, II, i, 68.
TRAPEZA . . .	Cave . .	Vases, &c., from burials. *A.J.A.*, XL, 371. *Arch. Anz.*, 1936, 162.
TZERMIADHA . .	Cave . .	One suspension vase in the Skaphidhia Cave. Excavated 1937.

(*b*) *Surface Finds*

KALOKHORIO PEDHIADHOS	Three-sided seal. Evans, *P. of M.*, I, F
MILATOS . . .	Suspension pot in the Candia Museum. No. 15.
PLATE	Jug, axes and stone bead from spot called Katsoukheiroi, seen in peasants' hands by the writer, 1935 and 1936.
SKHINEAS . . .	Sherds seen on Koprana by the writer, 1937.
UNKNOWN PROVENANCE	Calcite figurine. Evans, *P. of M.*, I, 64, Fig. 13, No. 20.

SOUTH CRETE

(*a*) *Excavated Sites*

AGIA EIRENE . .	Deposit .	Vase near circular tomb. Xanthoudides, *V.T.M.*, 52. The site is hard to find, about 1 hour NE. of Vasilike in the Messara.
AGIA TRIADHA .	Deposit .	2 vases, probably of this date, from Tholos. A. Banti, *Annuario*, XIII, XIV, 164 ff.
KOUMASA . . .	Deposit .	Sherds and vases by circular tomb. *Ibid.*, 9, 34.
KOUTSOKERA . .	Deposit .	Sherds and vases by circular tomb. *Ibid.*, 74. The site is half an hour N. of Vasilike in the Messara.
MARATHOKEPHALO .	Deposit .	Earliest deposit by tomb. Xanthoudides, *Ἀρχ. Δελτ.*, 1918, *Παρ.* I, 14 ff.
MIAMOU . . .	Cave . .	Vases, &c. Taramelli, *A.J.A.*, I, 287; *Mon. Ant.*, IX, 300.
PHAISTOS . . .	Deposit .	Mainly below W. end of the Palace. Mosso, *Mon. Ant.*, XIX, 199. Pernier, *Festos*, 115.
SALAME	Deposit .	Sherds near circular tomb. Xanthoudides, *V.T.M.*, 73. The site is 100 yd. from Koutsokera.

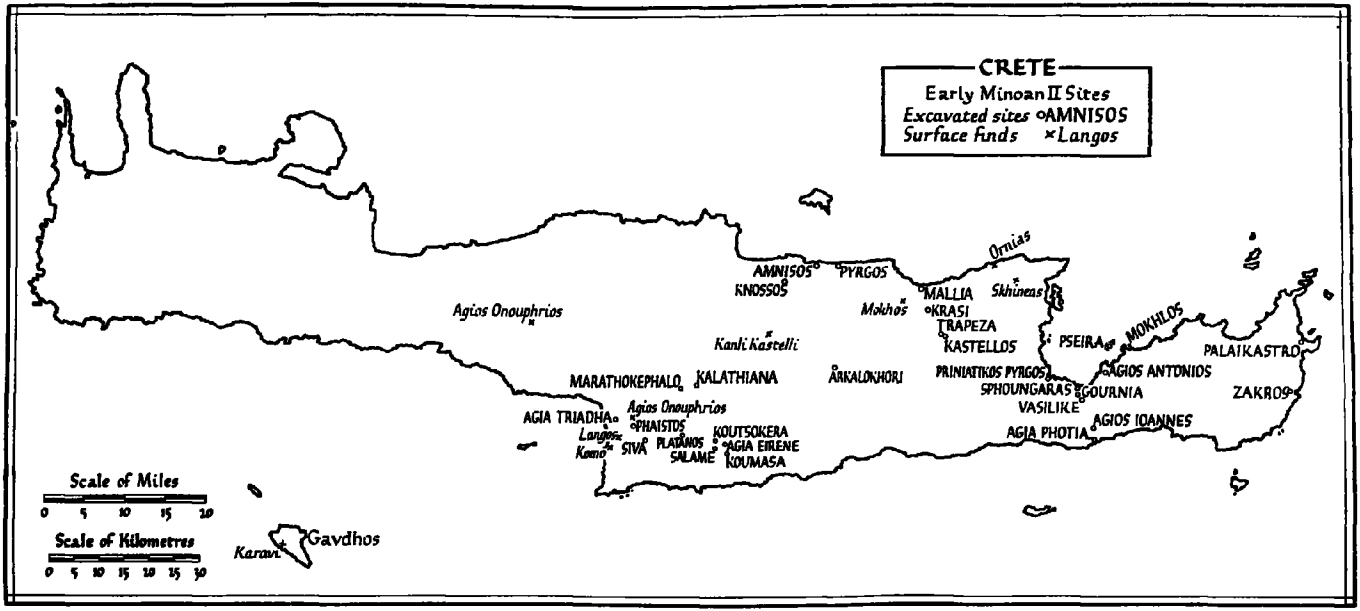
(*b*) *Surface Finds*

AGIOS ONOUPHRIOS	Vases, &c., in the Candia Museum, perhaps from deposit near a circular tomb. Evans, *Cretan Pictographs*, Supp., 105. The site is on the low hill above the inn where you turn off the main road to Phaistos.
GORTYNA . . .	Stone figurine. Evans, *P. of M.*, I, 64, Fig. 13, No. 8.
KOMO	Sherds from southern headland. Evans, *P. of M.*, II, i, 88. The site is just north of Matala in the bay of Messara.
ROUPHAS . . .	Sherds from the settlement on the line of the N.-S. road from Knossos. Evans, *P. of M.*, II, i, 80.

EAST CRETE

(*a*) *Excavated Sites*

AGIA PHOTIA . .	Rock shelter	Vases, &c. Hawes, *Gournia*, 56.
AGIOS IOANNES .	Cave . .	Sherds from burials. Hawes, *Trans. Penn. Univ.*, I, 214.


CRETE
Early Minoan II Sites
Excavated sites ○AMNISOS
Surface finds ×Langos
Agios Onouphrios
AMNISOS
KNOSSOS
PYRGOS
Ornias
Skhinias
MALLIA
KRASI
TRAPEZA
KASTELLOS
Mokhos
Kanli Kastelli
PSEIRA
MOKHLOS
PALAIKASTRO
AGIOS ANTONIOS
PRINIATIKOS PYRGOS
SPHOUNGARAS
GOURNIA
ZAKROS
VASILIKE
AGIOS IOANNES
AGIA PHOTIA
ARKALOKHORI
MARATHOKEPHALO
KALATHIANA
AGIA TRIADHA
Agios Onouphrios
PHAISTOS
Langos
Komo
STIVA
PLATANOS
SALAME
KOUTSOKERA
AGIA EIRENE
KOUMASA
Scale of Miles
0 5 10 15 20
Scale of Kilometres
0 5 10 15 20 25 30
Karavi
Gavdhos

MAP 5

AGIOS NIKOLAOS .	Rock shelter	Vases from burials. Tod, *B.S.A.*, IX, 340. Human remains. Duckworth, ibid., 344. The site is 1 hr. SW. of Palaikastro.
GOURNIA . . .	Deposit .	Sherds. Hawes, *Gournia*, 37.
MOKHLOS . . .	Deposits .	Vases from votive (?) deposit below tomb V and earliest deposit in town. Seager, *Mochlos*, 92, Fig. 48. *A.J.A.*, XIII, 279.
PALAIKASTRO . .	Cemetery .	Vases from N. cemetery. Bosanquet, *B.S.A.*, VIII, 290. One vase from Patema at the S. end of the site. *B.S.A.*, Supp., 5.
	Deposit .	Deposit in town. *B.S.A.*, X, 200, Supp. 4.
PETRAS	? . . .	Six sherds. Forsdyke, *B.M. Cat.*, I, 412, 413. Not published in report *B.S.A.*, VIII, 282.
SPHOUNGARAS . .	Rock shelter	Vases, &c. Hawes, *Gournia*, 56.
VASILIKE . . .	Deposit .	Vase and sherds from lowest level below houses. Seager, *Gournia*, 49; *Trans. Penn. Univ.*, I, 207.
ZAKROS . . .	Rock shelter	Vases from burials. Hogarth, *B.S.A.*, VII, 142. The site is a little above Kato Zakros.

(b) Surface Finds

HIERAPETRA ISTHMUS	Incised sherd. *B.M. Cat.*, I, 414.
MIRABELLO GULF .	Sherds. Ibid., 407–11.

2. EARLY MINOAN II (E.M.II)

(See Map 5)

The second Early Minoan Period is the climax of the so-called Early Bronze Age in the Aegean.[1] The use of metal is now general and we are justified in speaking of a real civilization whose arts and crafts have reached a considerable stage of culture.

The East end of the island is still ahead of the rest culturally; but in density of population the South is making rapid

[1] Analyses of daggers show that true bronze is not yet in use. Such alloy as appears is still fortuitous. *B.S.A.*, XIX, 47; *V.T.M.*, 26, and see below.

strides, due apparently to some external impulse. The centre and North of the island alone lag somewhat behind. For the first time, however, there seems to be a common civilization extending over all the populated districts and the differences observable between district and district are no more than are natural when communications by land are difficult and by sea are directed to that point of the outside world which lies nearest to the particular area.

In Central Crete the caves of Arkalokhori and Pyrgos are still in use, the one as a sacred place the other as a place of burial. At Knossos a few house floors appear below the southern terraces. How much more material of this period once existed can be guessed from the frequent occurrence of E.M.II sherds which had been swept away with the earth when the central Court was levelled and the debris therefrom used to bank up the NW. quarter of the first Palace. Another large site lay at Kanli Kastelli, SW. of Juktas, where on the spot called *Visala* (pot sherds) a certain amount of pottery has been picked up on the surface.

In South Crete, particularly in and round the Messara, sites lie thick. The circular tombs which now appear for the first time are dotted all over the plain and up into the foot-hills of Ida, while traces of what may have been one are observable at the great port of Komo to the South. No settlement unfortunately has yet been excavated. It has been considered remarkable that no settlements are known which correspond in date to the E.M. elements in the tombs, whereas in several cases settlements have been excavated which seem to begin with the latest, M.M.I, elements in the same tombs. Åberg has used this fact to prove his thesis that the contents of the tombs, E.M. and M.M., are all contemporary, without apparently considering it strange that no E.M. stone vases or seals are ever found in the *ex hypothesi* contemporary settlements.[1] There is, however, a perfectly rational answer. The M.M.I settlements are few enough and can easily be explained by a change of site, as at Vasilike in East Crete, which took place for some reason we can no longer see. As for the E.M. settlements they remain undiscovered because Xanthoudides mainly concerned himself with tombs, only excavating such settlements as lay in the immediate neighbourhood. It is extremely improbable that houses would be built in great proximity to

[1] Åberg, loc. cit., 250 ff.

tombs still in use,[1] and in the case of a fertile area such as the Messara the sites of villages change very little in the course of ages. It is extremely probable that we should look for the settlements under the modern villages, for that of the tomb at Marathokephalo below Moroni, of Dhrakonais below Phournopharango, of Khristos, Koutsokera, Salame and Agia Eirene below Vasilike, where a chance cutting for a road has already shown M.M.I sherds.

In East Crete the finds centre round the old ports of Palaikastro, Mokhlos, Pseira, Gournia and Zakros, with only two inland sites, Vasilike and Agios Antonios, both of which are within striking distance of the sea.

Again, it is the easterners who are the sailors pure and simple, probably relying on the fertile Hierapetra Isthmus and the few rich valleys running up from the East coast for necessaries of life but mainly engaged in sea traffic. The southerners, naturally enough, on entering the Messara plain, were converted to an agricultural and pastoral life almost at once—though still keeping open the old trade with Africa through the port of Komo. The men of Central Crete are consolidating themselves, taking what they can from their more progressive neighbours but content to wait.

From the anthropological point of view we have at last more to go on, though it must be added that some of the bodies examined may belong to the succeeding periods. Skulls from Agia Triada,[2] Agia Eirene,[3] Koumasa,[4] Palaikastro,[5] Platanos,[6] Porti,[7] and Zakros,[8] have been measured, and all show a pronounced dolichocephaly. This feature is so continuous throughout the Minoan Period that we may take it that from an anthropological point of view there is no evidence from E.M.I to L.M.III that any change of racial type took place.[9]

E.M.II Architecture

The architecture, both domestic and funerary, is much better known than that of previous periods. The houses at Vasilike are the best example of the one, the circular tombs in the Messara of the other.

[1] It is of interest to note that such M.M. settlements as have been found near tombs are situated in one case (Koumasa) close to a tomb where the M.M. deposit is very insignificant, and in the rest where it is totally lacking. In any case, I believe the M.M. deposit to have been votive and not funerary.

[2] Sergi, *Mem Ist Lomb.*, XXI, 252. [3] *V.T.M.*, 126. [4] Ibid.
[5] *B.S.A.*, IX, 344. [6] *V.T.M.*, loc. cit. [7] Ibid.
[8] *B.S.A.*, VII, 150.
[9] Mackenzie, *B.S.A.*, XII, 230 ff.; Evans, *P. of M.*, I, 8.

Two large houses were excavated at Vasilike (Fig. 5, and Pl. XV, 1). They consisted of a number of rectangular rooms

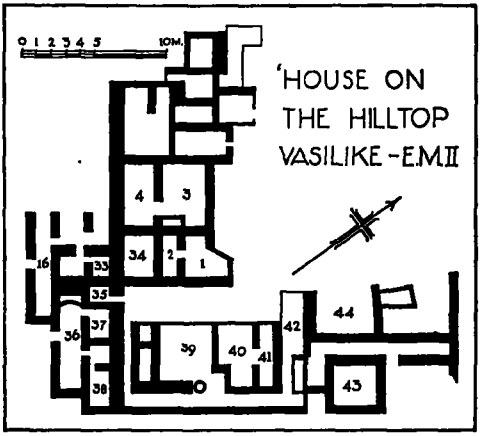


FIG. 5

of fair size whose complexity at first seems bewildering. Many of the rooms, being surrounded by other compartments, have

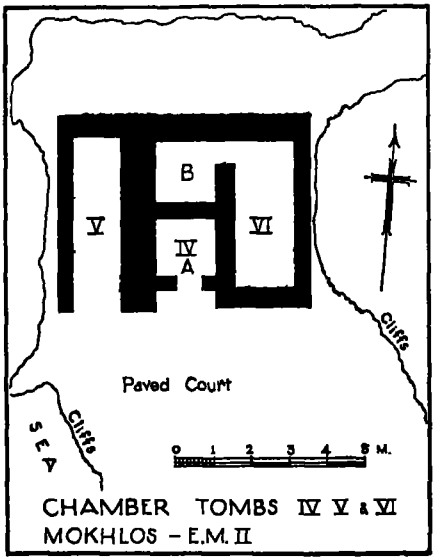


FIG. 6

no outside walls, and the probability is that we must look for a light-well even at this early stage. The lower part of the

walls is of stone, while above were sun-dried bricks tied by wooden beams vertical and horizontal. The wall surface was covered with a rough stucco with a fine red finish as hard as Roman cement, which has to a large extent preserved the walls.

E.M. II *Tombs*

In tomb architecture we find the survival of an earlier type of building. The old ' but-and-ben ' house-form of Neolithic days continues in the built tombs, the roofs of which may have been of reeds and clay (Fig. 6). They were built of roughly squared stones and consist of an outer and inner chamber, the latter to one side of the former. The elaboration of this plan occurs at Palaikastro [1] (Fig. 7), where more chambers are added

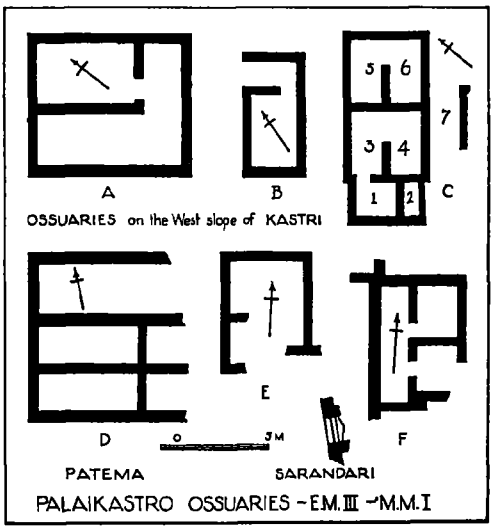


FIG. 7

to the ossuaries. The houses of the dead, in fact, were the traditional houses of the living of a bygone era.[2]

But at the same time a new type appears in the Messara. Here we find circular tombs used for generations by the family or community (Fig. 8 and Pl. V, 2). The interior diameter varies from about 13 metres to just over 4 metres. The thickness of the walls is usually between 1.50 and 2.50 metres, and the greatest height to which any have been preserved is 2.70 metres. They are built of roughly dressed stones with smaller stones in the interstices set in clay mortar. Most of the

[1] *B.S.A.*, XI, 270. [2] Cf. Mackenzie, *B.S.A.*, XIV, 365.

examples are built up from a flat floor of virgin rock and stood completely free. At Agia Triadha and Kalathiana, however, they back up against the sloping hillside. In no case, however, are they comparable to the rectangular lined chamber tombs of Knossos or to the tholoi at Mycenae, which depend for their preservation on the pressure of earth from without.

The problem of their roofing is complicated. If one takes the inward lean of the walls to indicate that they were vaulted over and were primitive tholoi, one would obtain a rough estimate of the height by assuming that it equalled the diameter, as in the case of the tholoi of Mycenae. Now such a structure, with a height of 13 metres and a wall thickness of 2½ metres,

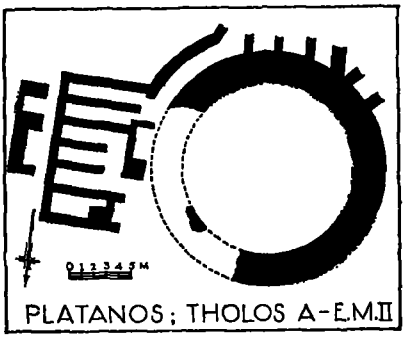


FIG. 8

would be unable to stand the outward thrust of the upper parts without pressure from outside. As we can see, they stood free for the most part.[1] At Platanos Xanthoudides found about 25 cubic metres of building stone which he thought proved that the tombs ran up to a considerable height and were domed. This amount of stone, however, would only suffice for an additional 80 centimetres of height. The walls survived in one place to 1.10 metres, and making a very generous allowance for small stones and bonding clay, we cannot admit that any greater height than 2½ metres is proved. It seems best to assume, therefore, either that they were covered with a flat roof resting on beams or else that the dome was continued in thatch.[2] As against this, Xanthoudides noticed in many of

[1] In Tomb A at Platanos, however, there are six narrow walls abutting on to the South side which might be buttresses.

[2] Mr. Heurtley, indeed, has shown me a photograph of a round hut in West Macedonia. The stone walls run up about 2 metres and the hut has a conical thatching, at the top of which rests a circular

them traces of burning as if a huge pyre had been lit. There was no evidence for the cremation of the dead; it appears more probable that the fires were lit for purificatory purposes, or that if they were thatched the roofs had accidentally caught fire.

The entrance to the tombs faces East and consists of a low door not more than a metre high formed of monolithic jambs and a heavy lintel. Outside this is a shallow stone-lined pit acting as a vestibule. This feature is elaborated in Tomb A at Platanos, where a whole series of chambers occur, and a similar annexe is seen at Agia Triadha.

The number of burials runs into hundreds, and these tombs were evidently the receptacles of the dead of a family or clan for many generations. Their use continues on into the beginning of M.M.I, though most of them, if not all, were built in E.M.II.

While these circular tombs have their home in the Messara,[1] caves and rock shelters continue to provide a burial-place in the North and centre of the island, while at the same time cist graves and fragments of larnakes make their first appearance at Sphoungaras.

E.M.II Pottery

The pottery is a direct development of the style of the previous period and is more or less uniform throughout the island.

First comes the monochrome grey ware, descended directly from the Sub-Neolithic wares. A fine example from Mokhlos is shown in Pl. X, 1, *f*, where not only the fabric but also the shape betrays its pedigree. With this must be taken the dark, burnished lids (Pl. X, 1, *a*). These are common in the Messara and at Arkalokhori, extremely common at Trapeza, while only three or four examples are known from East Crete except at Mokhlos.[2] They have been taken for pedestalled

stone to prevent the rain coming in through the orifice. Such a stone was found by Xanthoudides at Platanos and taken for a cap stone, and one unexcavated noticed by myself and our foreman at the Monastery of Kalergi, N. of Kastelli Pedhiadha. *V.T.M.*, 91, cf. Marinatos, *Arch. Anz.*, 1930, 103. The analogy drawn in *V.T.M.* with the cheese dairies on Mount Ida is not a fair one. They are all fairly small and the rough vaulting is made possible by the use of the great flat slabs of limestone which are common there. The tombs, on the other hand, are built of smallish rough stones. Seager, *Trans. Penn. Univ.*, II, 131, doubted whether they were roofed at all.

[1] There is one at Krasi and suspected ones at Kalergi and Pedhino near Adhromyloi (see Map 13).

[2] *Mochlos*, 20, 71; *Sphoungaras*, 49. The latter is oval in shape.

fruitstands or offering tables,[1] but the fact that the decoration is confined to what would in that case be the under surface, combined with the fact that in a number of cases the base of the 'pedestal' is too convex to allow it to stand, makes it clear

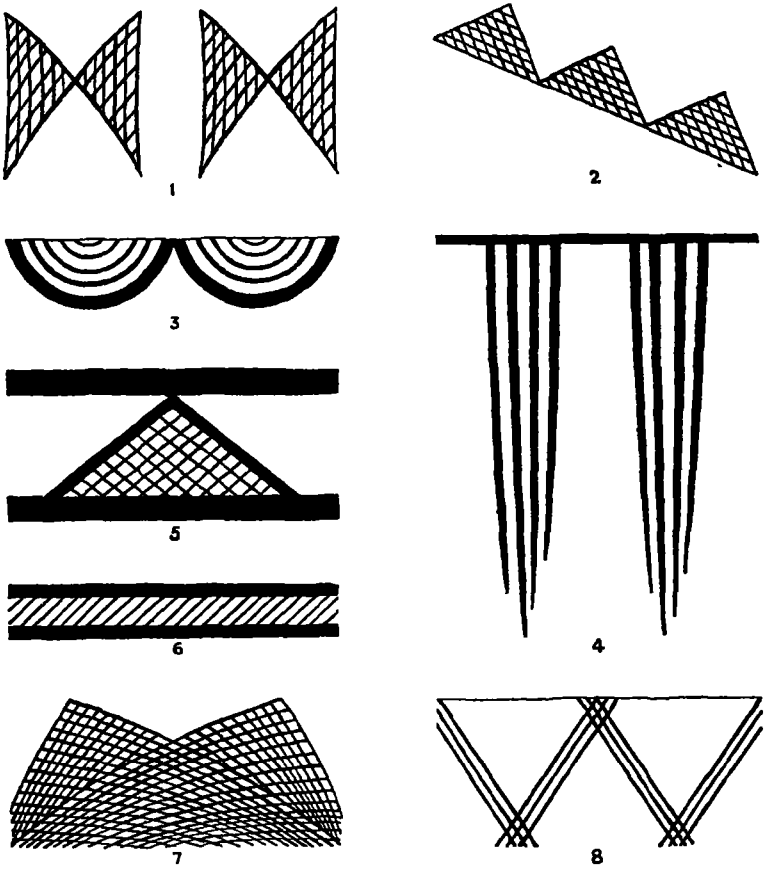


FIG. 9.—Patterns on Early Minoan II Pottery

that they were intended for covers, though the vessels corresponding to them are uncertain.[2]

Other monochrome vessels are of rough red clay or of buff clay, more finely levigated and covered with a thick slip which

[1] *P. of M.*, I, 75.

[2] Xanthoudides, *V.T.M.*, 10, believes they covered the coarsely made cooking tripods. But they may equally well have been used with vessels of perishable materials such as wood or gourds.

took a good polish. The handleless cups have usually a low base (Pl. X, 1, *c*) and some show signs of paring which becomes so common in the succeeding periods. On a house floor at Knossos [1] was found a cup with a high swung handle which has since been paralleled by one from Vasilike and a great number of examples from the unstratified deposit in the cave at Trapeza. Open bowls are common. The jugs have a flat bottom and their spouts are higher than in the preceding period, though not of so exaggerated a type as appears at Vasilike during the latter part of E.M.II.

A great advance in painted decoration is shown (Fig. 9). The surface of the vase is more carefully prepared than in E.M.I and the rather dull red or brown varnish stands out more effectively. Lattice work and hatched triangles are common, particularly on small spouted jars (Pl. X, 1, *b*).[2] On jugs two hatched triangles are frequently joined at the apex to form a kind of butterfly or double axe pattern (Pl. X, 2, *f*). Such cups as are decorated are content with a narrow band of colour just below the rim. Dishes and bowls also show a band round the rim or, as in a few cases from Knossos,[3] a broad band of lattice work runs right across the inside. But one example from Mokhlos exhibits the most elaborate and successful decoration to be found in the whole period (Pl. X, 1, *e*). So unusual is it that Frankfort [4] has seen in it an importation whether direct from Syria or via Cyprus. His arguments are based on the colour and consistency of the paint and on the concentric circles which form part of the decoration. I have, however, examined the vase very closely, and in my opinion the unusual appearance of the paint is due to the fact that the slip was more than usually thick, which accounts for the paint standing out, while the colour is merely a different tone, not a different medium. The concentric circles are admittedly a Cypriote and Palestinian feature, but they form a very small element in the design, which in every other respect consists of typically E.M.II motives, however elaborately and unusually arranged. Concentric circles also are a motive which might occur to anyone who had a space to fill, though it is curious that they do not appear elsewhere in Crete until the Proto-

[1] *P. of M.*, I, Fig. 40, top right, and from Vasilike, *Gournia*, Pl. XII, 17.
[2] Cf. *V.T.M.*, Pl. XXVI, *b*.
[3] e.g. *P. of M.*, I, Fig. 40, bottom row.
[4] *Studies*, II, 122.

geometric period.[1] So, while we may admit the possibility of the artist having seen such foreign wares, we may still regard this bowl as a good example of E.M.II pottery. Mention must also be made of the anthropomorphic vase from Koumasa (Pl. XII, 3), which is the earliest of its kind.

At Vasilike in East Crete the period was one of great prosperity and activity. Two distinct phases could be distinguished,[2] and during the second of these a local style of pottery, of which a few examples occur in the earlier level, finally ousts the ordinary dark-on-light ware. This local pottery, frequently known as 'Vasilike ware', is so excellently made that the discoverers imagined that the potter's wheel must already have been introduced. The most, however, that can be allowed is a very primitive form of 'tournette'. In shapes it is inclined to fantastically long spouts on jugs and jars (Pl. X, 2), although the ordinary forms survive. The influence of metal vases is often shown in the angular shapes, frequently accompanied by imitation riveting (Pl. X, 2, *a*).[3]

The individuality of the style, however, lies in its mottled surface. This mottling was obtained by means of uneven firing. Frankfort[4] describes how the coals in the oven are allowed actually to touch the pot at intervals giving a yellow centre surrounded by a black ring of irregular form caused by the smoke while the background remains brown or red. Innumerable variations are found, though the difficulty of ensuring the position of the coals meant that formal designs were out of the question. Pl. X, 2, *d*, however, seems too regular to be the result of chance. The great spouted jar, *c*, on the same plate, also seems to have some method, but as Frankfort points out, the effect is less rich in colour and gives the impression of having perhaps been executed with a burning branch.

Before the end of E.M.II, vases of this style had been exported to other parts of Crete[5] to be imitated locally, some-

[1] Except two examples from Kamarais, Pl. XXII, 3, *b*.

[2] *Trans. Penn. Univ.*, II, 114. It must be remembered that Period 1 has since been attributed with certainty to E.M.I, leaving Periods 2 and 3 for E.M.II.

[3] A few examples, however, where the dots run down the side of the vase, may indicate the stitches of a leather original. The double handle occasionally found may be derived from the folding in of leather or metal.

[4] Op cit., 90.

[5] e.g. Knossos, E., III, 18, in Palace Museum; Mallia, *Mallia*, I, 14; Trapeza, Gournia, *Trans. Penn. Univ.*, I, 186; Priniatikos Pyrgos, *Vrokastro*, 84.

times in the true technique as at Palaikastro,[1] sometimes with the mottling copied in paint as at Trapeza and in the Messara.[2] Both the original style and the imitations of it continue into the following period with various modifications which will be mentioned in their place.

E.M.II Stone Vases

E.M.II sees both the beginning and the culmination of the manufacture of stone vases (Pl. X, 3; XI, 1 and 2). Those found in the tombs at Mokhlos admit of the most accurate dating and are indeed the only ones which can be dated with certainty to this period.[3] They are carved in green, black and grey steatite, breccia, marble, alabaster and limestone, all of them stones to be found in Crete even if not in the immediate neighbourhood. Their colouring is brilliant and the veins in the stones are utilized very skilfully for effect. The workmanship is excellent, particularly in view of the fact that it is a new industry. The vases seem to have been roughly blocked out first and finished by careful hand-grinding, the interior being hollowed by means of a tubular drill, probably a reed worked with sand and water. It is certainly an extraordinary phenomenon that vases of such distinction should be turned out with no previous experience. It has been suggested, and with reason, that the impetus was given by direct contact with Egypt, where the art of fashioning vases of the hardest stone had been known from the earliest times, and certainly the shapes of many of them lend colour to this (see the end of the section). The lack of poor specimens may be accounted for by the fact that the best only were buried with the dead, while those of the softer stone with which the first experiments were no doubt made were in daily use, more liable to be broken at the time and more perishable in the course of centuries.[4]

Besides vases with Egyptian affinities are many which are purely Minoan in character and which show how soon the new art was nationalized. Nothing could well be more typically Minoan than the vases shown in Pl. X, 3, *g* and *m*, which are translations into stone of clay vases of the period. In addition are simple bowls, open spouted bowls, vases with pedestals and small jugs, while in one tomb occurs a breccia lid which reminds one of the tall caps of E.M.I.

In the Messara it is dangerous to attribute any of the stone vessels to this period with the possible exception of some of

[1] *B.S.A.*, *Sup.*, 5.
[2] *Annuario*, XIII–XIV, 236.
[3] *Mochlos*, 99.
[4] Ibid.

the rectangular 'pepper and salt' vases (e.g. Pl. X, 3, *b*). Even of these the majority seem to belong to E.M.III, and their Egyptian connexions will be discussed there. The rest, whether from their uninspired technique or from their likeness to datable vases from Mokhlos, must certainly be put to the later date.

At Trapeza, however, where the cave was evidently a fashionable burial-place in E.MII, there do occur vases, though unstratified, which are undoubtedly of that period. Pl. XI, 1, shows some of the examples, usually of green steatite, which most nearly resemble the types of Mokhlos.[1] The pedestalled cup also is obviously early. Indeed, it may well be one of the links for which we have been looking, for it is of the soft speckled grey steatite which rots so easily, and with its ringed stem it seems to link on even to the previous period.[2]

Though by no means typical of the period, the lid shown in Pl. XI, 2, must be mentioned to show the approach to naturalism already achieved.[3] The handle of the lid is in the form of a half-starved village hunting-dog, with ears, though curiously not tail, cropped, of the kind which to-day accompanies you on your walks, stealing and poaching without shame.

E.M.II Metalwork

The use of copper is now widespread (Pl. XI, 3). Two types of dagger occur, the earlier triangular form which frequently appears alone[4] and the later long form with a medial rib which seems to supersede the other in the Messara at any rate, before the end of the period. At Mokhlos the triangular dagger seems to persist to the end of E.M.III.[5] In no case is the handle, which must have been of wood or bone, preserved.

The triangular type is shown by two examples, one from Koumasa with a straight top, one from Platanos with the top scalloped (Pl. XI, 3, *e* and *g*). Transitional types from Kou-

[1] e.g. *Mochlos*, Fig. 7, 2*h*.

[2] Cf. a goblet on a shorter unringed stem, *Mochlos*, 77, XXI, 7.

[3] Ibid., 20, another from Tylissos is published *à propos* of a lid from Byblos on which is a squatting bull, by Miss Money-Coutts. *Berytus*, III, 129. Though it does not go so far as to say so, this article has almost convinced me that the lids are not Minoan at all but Syrian.

[4] e.g. at Platanos, *V.T.M.*, 107.

[5] *Mochlos*, 107, but a long dagger was found in an E.M.III ossuary at Palaikastro, *B.S.A.*, *Sup.*, 116, and another in an ossuary where a large number of E.M.II vases were found. So East Crete was not backward.

masa are *i* and *f*, the latter of silver and showing a medial rib. The long type is shown in *b*, also of silver; it corresponds to shapes found at Salame in a pure E.M.II context, though itself it is not stratified. The socketed arrow-head from Tomb XIX at Mokhlos must surely be intrusive.

Another object of copper which is common at this period is a small blade rather like an axe with a convex edge and two holes at the end of the tang. Examples were found at Mokhlos,[1] Koumasa and Platanos,[2] while an unstratified example from Trapeza still preserves a small ivory handle which prolongs the line of the blade. This, together with a distinct wearing at one end of the edge, shows that the original excavator's theory is correct and that they were not merely votive models but objects for use probably connected with the toilet. Tweezers, too, are found both at Mokhlos and in the Messara. They are of a simple type with the two ends widened. At the top the arms are sometimes pinched in to form a loop at the end. A tool somewhat resembling the toilet knives but much larger is shown in Pl. XI, 3, *a*. It was probably used for wood-cutting. In the same tomb at Koumasa was found a fine-toothed saw. In Tomb II at Mokhlos appeared a double axe of copper and two smaller ones of lead.[3] Their stratification is certain and they are the first examples of an object which, as a religious symbol, is typical of the Minoan Age.[4]

E.M.II Figurines

It is unfortunate that only one of the figurines which have been attributed to E.M.II was found in a stratified deposit. This is an unpainted clay figurine from Palaikastro.[5] The body is a mere column, the arms are short stumps on a level with the face, on which eyes and nose alone are marked. The neck, waist and legs are not indicated. For the rest we must go on style alone. Signorina Banti has made a most careful analysis of the various types of figurines from the larger tomb at Agia Triadha,[6] and has come to the conclusion that it would be dangerous to date any but the most primitive to this period. Her conclusions will fit very well with the rest of the Messara and also with the finds at Trapeza, the only other site where E.M. figurines have been found in any

[1] *Mochlos*, 107. [2] *V.T.M.*, 28. [3] *Mochlos*, 34, 107.
[4] Whence came the shape? Hall, *Essays presented to Sir Arthur Evans*, 42, publishes a flint example of very early date from Egypt.
[5] *B.S.A.*, XI, 273, *Sup.*, 131.
[6] *Annuario*, XIII–XIV, 243.

numbers.[1] In Pl. XII, 1, the middle row shows typical examples of this type, with a triangular pointed body, a triangular or rhomboidal head, and in one case rudimentary arm stumps, these are from Trapeza, while the top and bottom figures on the right in Pl. XII, 2, are from Platanos. The materials are exclusively limestone and crystal. Their foreign affinities we shall discuss later, but I think we are already justified in considering them as original products of the Messara whence they were exported or, in the case of Trapeza, imitated.

*E.M.*II *Seals*

The seals of the period are also a difficulty. There are only three well-stratified examples, all from Mokhlos[2] (Fig. 10), while one more from Mokhlos and one from Sphoungaras are of the same style although E.M.III pottery as well as E.M.II was present.[3] They are of ivory or steatite—easy materials to

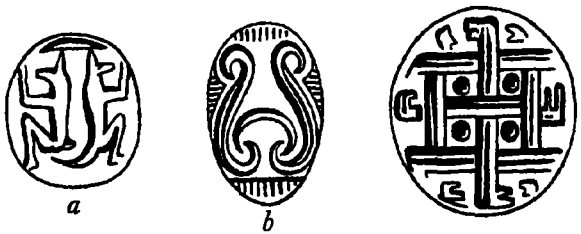


FIG. 10.—Early Minoan II Seals

cut. Three from Mokhlos are cylinders pierced both vertically and horizontally, one is a signet, while that from Sphoungaras has a bird's head.

Two of the designs shown in the figure are of a distinctly Egyptian type, the other has a simple lattice pattern at one end and at the other conventional scrolls. In any case, they must belong to the end of the period, and we may well agree with Frankfort[4] that it is really with E.M.III that Minoan glyptic art begins.

*E.M.*II *Jewellery*

One of the most surprising results of the work at Mokhlos was the extraordinary amount of gold which was found and the skill shown in fashioning it. Pl. XIII, 1, shows a typical group of objects, all well stratified to this period except the

[1] The only other examples are Knossos, *P. of M.*, II, 31; Mokhlos, *Mochlos*, Fig. 47, 5; Palaikastro, *B.S.A.*, *Sup.*, 149; two bought and one a surface find. The other figurines from Trapeza which we at first attributed to E.M.II are, we are now convinced, E.M.III.

[2] *Mochlos*, 34, 54, 108.

[3] Ibid., 70, and *Sphoungaras*, 52.

[4] *Studies*, II, 123.

pendant at the bottom on the right of the centre. It may be chance that has preserved so much at Mokhlos whereas the Messara is singularly poor. But since such gold work as remains at Koumasa and Platanos is almost certainly E.M.III, and one can hardly believe that tomb robbers will confine themselves to digging for objects of the earliest date while ignoring the upper levels, it seems as if this contrast reflects the comparative wealth of the East and the South pretty fairly.[1]

The most advanced work is seen in the fine chains from which depend leaves or pendants,[2] and in the representations of flowers and sprays. The gold is thin leaf and the designs on it are either *répoussé* work or pricked. In the case of bracelets the edges seem to have been turned over to grip a core of leather.[3] Headbands occur with designs pricked out on them. That shown in Plate XIII has two dogs on each side facing the centre. At each end are holes for the strings which tied the tiara on, but in some cases it seems as if pins, such as that shown with a daisy head, were used instead. Another [4] has two eyes upon it, which has led to the suggestion that we have here a forerunner of the gold masks of Mycenae.[5] This, however, was the thickest gold of all and seemed to the excavator to have been clearly intended to be worn during the lifetime of the owner. Holes occur along the top of many of these diadems, and it is possible that some of the pendants may have been attached to them as a fringe, though from their position at the top it rather suggests that a net cap was worn over the head. Perhaps to this period belongs a tiny gold mask intended to cover a core of some other material.[6] In gold long tubular beads occur and small flat ones,[7] as well as simple forms which will be elaborated in E.M.III. Rock crystal, limestone, cornelian, shell, and faience were also used, the shapes being flat, short tubular, or flattened spherical or pear-shaped.

[1] But cf. *V.T.M.*, 110, where it is explained by the theory that the plundering of previous interments was a regular feature so that only the last burial escaped intact. This, if true, makes the contrast between East and South one of morals rather than wealth.

[2] Exactly paralleled by one from the lower stratum in Tomb A at Platanos. *V.T.M.*, 111. Cf. the group of jewellery, probably contemporary from Thyreatis, now in Berlin. Karo, *Schachtgraber von Mykenae*, 188, 300, 350.

[3] *Mochlos*, 68.

[4] Ibid., 27.

[5] *P. of M.*, I, 97.

[6] *Mochlos*, 78.

[7] Ibid., 55, 78.

*E.M.*II *Foreign Relations*

No actual imports from abroad have yet been found in E.M.II strata, but imitations and resemblances are just as important.[1]

The most frequently quoted examples of Egyptian or rather Libyan influence are the primitive statuettes from the Messara. Signorina Banti [2] disclaims any possibility of direct influence from Predynastic Upper Egypt.[3] But it must be remembered that it is the Libyan element in that Predynastic civilization with which we are dealing, an element which seems to have continued strongly as far East as the Western Delta until dynastic times.[4] This may be somewhat roundabout, but it seems the only theory which will explain certain factors in the Messara, the apparently bearded figurines, their cloaks, and the sudden appearance of a circular type of tomb, perhaps thatched but almost certainly connected with the '*mapalia*' of Libya.[5] These features were practically confined to the Messara, where they shortly died out. Other traits, however, found more favour and spread all over the island. Evans has pointed out and illustrated [6] the Libyan affinities of the Minoan side lock, the codpiece, and the plain bow with a broad-edged flint tip to the arrow, all of which persisted into later times. The 'pepper and salt' pots (Pl. X, 3, *b*) spread elsewhere during E.M.III but then die out.

Just as for Libya, the most natural approach to Crete was directly across to the South Coast, where the Messara bay offers the safest haven, so the natural line of traffic with Egypt led along the East Coast and round to Mokhlos. It is here, therefore, as we should expect, that direct Egyptian influence is most felt.[7]

On Pl. X, 3, *f*, *h*, *k*, and *n*, are examples clearly copied from Egyptian originals. The most common type is the ointment pot, *f* and *k*, which attained considerable popularity in the

[1] I purposely omit the diorite bowl (*P. of M.*, I, 86) and moustache cup (*P. of M.*, II, 57), both of the IVth Dynasty, because neither was stratified.

[2] Op. cit., 92. [3] Hierakonpolis and Nagada. Petrie, *Nagada*, 45.

[4] *Studies*, II, 97, and references there given.

[5] *P. of M.*, II, 31 ff. The round building at Tiryns, *Tiryns*, III, 80 and 203, seems to be of transitional E.H.–M.H. date, i.e. contemporary with M.M.I.

[6] Ibid., 34 ff.

[7] Why Palaikastro should be so barren of Egyptian contacts it is hard to see. But it is clear that the site was comparatively unimportant in Early Minoan times.

Messara. This shape exists in Egypt from the Ist to the VIth Dynasty, but in its more refined form, as shown in *k* only from the IVth to the VIth. The tall vase, *h*, resembles the Egyptian '*hes*'-vase, which with a simple rim like this ranges from the Ist to the IVth Dynasty.[1] The vase, *n*, with two vertically pierced handles, resembles Ist-Dynasty examples, though in Egypt the handles are pierced horizontally.[2]

Evans[3] has seen in the exaggerated spouts of Vasilike a reflection of Early Dynastic copper vessels, where the prominent spout connects with the interior by a very small hole, a feature of the Cretan vases also. This, taken in conjunction with the indications of metal originals to be seen in a number of shapes in Vasilike ware, is a strong argument in favour of considerable Egyptian influence.

It is noteworthy also that two of the seals shown in Fig. 10*a* and *b* have both distinctly Egyptian designs. Both, unfortunately, seem very sophisticated for so early a period in Egypt; the design on *b* looks almost Middle Kingdom, but there is no question of their stratification.

Of direct Anatolian influence it is more difficult to find a trace. That E.M.I owed much to that region we have already seen, but E.M.II seems to be a natural development along the same lines, and though no doubt connexions were maintained, there is no new element coming in at that period which must be explained by a fresh wave of immigrants.

The pottery, peculiar to Vasilike, is a highly specialized form of 'Urfirnis' ware—the pottery covered with a lustrous black or brown wash—which develops in Greece and the Islands, no doubt with an ultimate Anatolian origin between Early Helladic–Early Cycladic 1 and 2, and it seems most probable, considering the position of Vasilike, that it is a few settlers from the North rather than from the East who introduced it.

E.M.II Chronology

Our positive chronology, then, is still dependent on Egypt. We have seen that the stone vases from which the Minoan examples were copied range from the Ist Dynasty until the VIth, with the majority in the IVth to the VIth, and it seems safest to retain the old dating of E.M.II from 2800 to 2500 B.C.

[1] Reisner, *Antiquity*, V, 200 ff., has made a careful study based on his work at Giza (*Mycerinus*), but he refuses to recognize any vases found in Crete as Predynastic in spite of the almost conclusive argument of material, for variegated stones begin to drop out before the end of the IInd Dynasty.

[2] *Mycerinus*, Pl. 70, *b*.

[3] *P. of M.*, I, 80.

SITES WHERE EARLY MINOAN II REMAINS HAVE BEEN FOUND

WEST CRETE

(b) Surface Finds

AGIOS ONOUPHRIOS		Hard plaster like that of Vasilike, indeterminate sherds, found by writer, 1935. Also story of stone axes found near the church. Site above Mesonisi in Amari.
GAVDHOS . . .		Sherds at Karavi. Levi, *Art and Archaeology*, 1927, 176 ff.

CENTRAL CRETE

(a) Excavated Sites

AMNISOS . . .	Cave . .	Vases from Eilythyia cave. Marinatos, *Πρακτικά*, 1929, 95; 1930, 91.
ARKALOKHORI .	Cave . .	Covers and daggers. Hazzidakis, *B.S.A.*, XIX, Fig. 4*f*.
KASTELLOS TZERMIADHON	Settlement	Traces on the summit. Excavated, 1937, by the writer.
KNOSSOS . . .	Houses .	Vases, &c., from floors on S. slope. Evans, *P. of M.*, I, 71.
KRASI	Tomb .	Vases and implements as well as building of the circular tomb. Marinatos, *Ἀρχ. Δελτ.*, 12, 102.
MALLIA . . .	Stratum .	Vases, &c., immediately underlying first palace in Quarters III–VI. Chapoutier, *Mallia*, I, 13–20. *B.C.H.*, 1928, 367.
PYRGOS . . .	Cave . .	Vases and daggers from burials. Xanthoudides, *Ἀρχ. Δελτ.*, 1918, 136.
TRAPEZA . . .	Cave . .	Vases, daggers, and figurines from burials. Excavated 1936. *A.J.A.*, XL, 371. *Arch. Anz.*, 1936, 162.

(b) Surface Finds

KANLI KASTELLI .	Sherds picked up from settlement at Visala. Evans, *P. of M.*, II, 71.
MOKHOS . . .	Sherds and plaster on Edhikte, a summit ½ hr. E. of the village; also a stone vase in a peasant's hands. Found by writer, 1935.
ORNIAS . . .	Traces of rock shelters found by the writer, 1937.
SKHINEAS . . .	Sherds on Koprana seen by the writer, 1937.

SOUTH CRETE

(a) Excavated Sites

AGIA EIRENE . .	Tombs .	Vases from in and round the circular tombs. Xanthoudides, *V.T.M.*, 52.

AGIA TRIADHA .	Tombs .	Large circular tomb and contents. *Mem. Ist Lomb.*, XXI, 248. Banti, *Annuario*, XIII–XIV, 164 ff. *Mon. Ant.*, XIV, 679. Smaller tomb, *Rend. Linc.*, 1905, 392.
KALATHIANA . .	Tomb .	Daggers, &c., from circular tomb. Xanthoudides, *V.T.M.*, 76, 82.
KOUMASA . . .	Tombs .	Main contents of circular tombs. Ibid., 8.
KOUTSOKERA . .	Tomb .	Sherds from circular tomb. Ibid., 74.
MARATHOKEPHALO	Tomb .	Vases, &c., from the circular tomb. Xanthoudides, *Ἀρχ. Δελτ.*, IV, *Παρ.* 21.
PHAISTOS . . .	Deposit .	Sherds, &c. Mosso, *Mon. Ant.*, XIX, 204. Pernier, *Festos*, 115 ff.
PLATANOS . . .	Tombs .	Vases and daggers from the circular tombs. Xanthoudides, *V.T.M.*, 88.
SALAMI . . .	Tomb .	Sherds and daggers from the circular tomb. Xanthoudides, *V.T.M.*, 74.
SIVA	Tombs .	Two circular tombs, earliest contents. *Ausonia*, VIII, *Sup.*, 13 ff.

(*b*) *Surface Finds*

AGIOS ONOUPHRIOS	Vases, &c., probably from a circular tomb. Evans, *Pictographs*, *Sup.*, 105.
KOMO	Sherds and possible remains of circular tomb. Evans, *P. of M.*, II, 88.
LANGOS . . .	Sherd picked up and walls seen in gorge between Kamilari and Komo by writer, 1934. *B.S.A.*, XXXIII, 89.

EAST CRETE

(*a*) *Excavated Sites*

AGIA PHOTIA . .	Cave	Vases from burial. Boyd-Hawes, *Trans. Penn. Univ.*, I, 183. *Gournia*, 56, 60.
AGIOS ANTONIOS .	Cave	Vases from burial. Hall, *Vrokastro*, 183, by church near Kavousi.
AGIOS IOANNES .	Cave	Vases from burials. Boyd, *Trans. Penn. Univ.*, I, 214.
GOURNIA . . .	Deposit .	Sherds and vases from the town. Hawes, *Gournia*, 37. Also cf. Mosso, *Dawn of Mediterranean Civilization*, 289, for traces of a copper mine of this date at Khrysokamino.
MOKHLOS . . .	Tombs .	Vases, seals, daggers, &c. Seager, *Mochlos*, passim.
	Settlement	Houses and contents. Seager, *A.J.A.*, XIII, 274.

PALAIKASTRO . .	Stratum .	Deposit in lowest strata of δ 32 and block X. *B.S.A.*, *Sup.*, 5.
	Ossuaries.	Vases, &c., from Kastri and Ellenika. *B.S.A.*, *Sup.*, 6 and 7. *B.S.A.*, X, 196.
PRINIATIKOS PYRGOS	Settlement	Earliest deposit. Hall, *Vrokastro*, 84.
PSEIRA . . .	Stratum .	Deposit below floor of Room 4, House A. Also stray finds. Seager, *Pseira*, 17.
SPHOUNGARAS .	Cave . .	Vases from burial. Hawes, *Gournia*, 56.
	Tombs .	Cist and larnax. Hall, *Sphoungaras*, 49.
VASILIKE . . .	Settlement	Houses and contents. Seager, *Trans. Penn. Univ.*, I, 213; II, 115. Hawes, *Gournia*, 49.
ZAKROS . . .	Cave .	Vases from burial. Hogarth, *B.S.A.*, 142.

(*b*) *Surface Finds*

HIERAPETRA ISTHMUS	Spouted jars and sherds. Forsdyke, *Brit. Mus. Cat.*, I, 424, 425, 429.
MIRABELLO GULF	Bowl, cup, and jug. Ibid., 416, 423, 426.

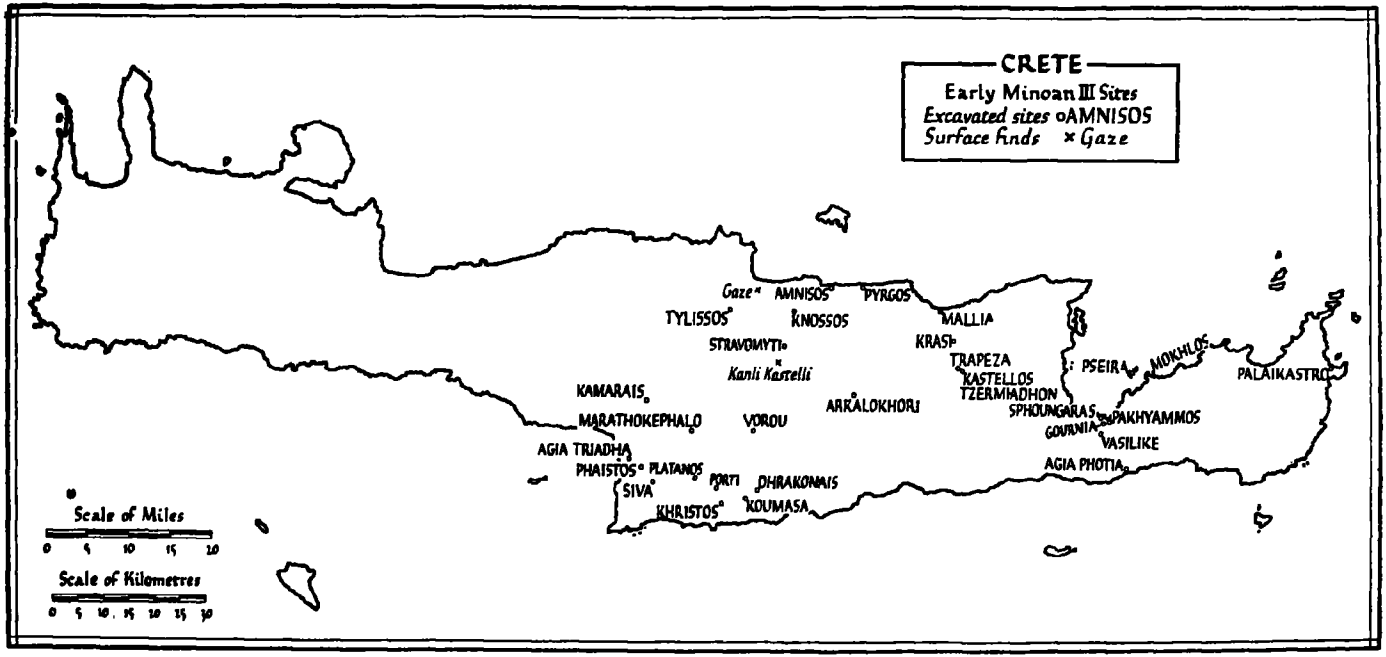
2. EARLY MINOAN III (E.M. III).

(*See Map 6*)

The Early Minoan III Period is a curious and difficult one to define, for, as we shall see, it can in some ways be called transitional between the Early and Middle Bronze Age in Crete, yet at the same time it has features of its own in the East and South which mark it off as a new epoch, while in the centre and North it is very clearly the end of the archaic Minoan Period.

The map shows a few more sites in the North, a concentration on the main sites in the East and the old sites in the Messara continuing. One point to be noticed is the comparative scarcity of unexcavated sites where surface finds have been made. This is not necessarily due to the fact that there are very few such sites, but to the fact that so much of the less highly decorated pottery is indistinguishable when in fragments from that of the previous period. Thus it is inconceivable that the great site of Komo was abandoned in E.M.III, it merely happens that no typical sherd has been picked up.[1]

[1] I would also draw attention to the list of sites where E.M. pottery has been found which cannot be more closely dated. P. 289 following and Map 13.


CRETE
Early Minoan III Sites
Excavated sites ○AMNISOS
Surface finds ×Gaze
Gaze
AMNISOS
PYRGOS
TYLISSOS
KNOSSOS
MALLIA
STRAVOMYTI
KRASI
Kanli Kastelli
TRAPEZA
KASTELLOS
TZERMIADHON
PSEIRA
MOKHLOS
PALAIKASTRO
KAMARAIS
ARKALOKHORI
SPHOUNGARAS
PAKHYAMMOS
MARATHOKEPHALO
VOROU
GOURNIA
VASILIKE
AGIA TRIADHA
PHAISTOS
PLATANOS
AGIA PHOTIA
PORTI
DHRAKONAIS
SIVA
KHRISTOS
KOUMASA
Scale of Miles
0 5 10 15 20
Scale of Kilometres
0 5 10 15 20 25 30

MAP 6

*E.M.*III *Architecture*

Architecturally the period is poor. At Vasilike the big E.M.II house had fallen into ruin and the hovels of the new period built of smaller stones huddle against one of the surviving walls.[1] No other buildings which can be definitely assigned to E.M.III are known, though some of the M.M.I houses at Pseira, Mokhlos, Palaikastro, Agia Triadha, and Tylissos may well have been built on earlier foundations or been adaptations of the earlier houses.[2] The great Hypogaeum at Knossos has been attributed to E.M.III.[3] But the contents were almost exclusively M.M.I, and the number of E.M. fragments, which is expressly stated to be a vanishing quantity, do not seem sufficient to date it back to that time, for they may well have fallen in like the accompanying Neolithic from the surrounding earth. But the most important structures of this time which must have been on the summit of the mound were swept away when the Central Court was made.[4]

*E.M.*III *Tombs*

The architecture of the built tombs both at Mokhlos and in the Messara is indistinguishable from that of the preceding period. In the East and centre of the island rock shelters are still in use and larnax and pot burials are coming into fashion. That there was no break between E.M.II and III is shown by the consistent re-use of tombs whether caves or built ones. Indeed, in the Messara, Porti, Khristos, and Vorou are the only ones hitherto excavated which seem to have been built in E.M.III.

*E.M.*III *Pottery*

The great difference between the pottery and that which has gone before is the substitution of light-on-dark for dark-on-light decoration. (See Fig. 11, where for convenience the patterns are done in dark on light.) Now this reversal seems to require some explanation, and having regard to the tremendous quantity of E.M.III pottery found in the East of the island, we have one ready to hand. The mottled ware of Vasilike had during the latter part of the E.M.II practically driven out the dark-on-light geometric decoration, or had at any rate become the fashionable style. Now undecorated monochrome or comparatively monochrome pottery never seems to have appealed to the Cretans. The mottled decoration was a chancy business in any case and

[1] *Trans. Penn. Univ.*, I, 218; II, 113, 118.

[2] *Pseira*, 9; *A.J.A.*, XIII, 274; *B.S.A.*, IX, 300; *J.H.S.*, XXXIII, 365; *T.V.M.*, 79.

[3] *P. of M.*, I, 104.

[4] This evidently happened at Gournia also, accounting for the mass of E.M.III pottery found to the North of the site. *Trans. Penn. Univ.*, I, 191.

practically impossible to regulate. Some decoration was essential, and one finds mottled ware of E.M.III incised and punctuated.[1] But even that somewhat primitive method of decoration was not particularly effective, and since the dark varnish of E.M.II would not show up on the dark background of the mottled ware, the designs were drawn in matt white.[2] It is evident from the few examples of this technique which exist that it was soon realized that the mottled background added nothing to the effect and the white designs appear almost at once on the background of a black varnish.[3]

The new style soon spread to Central and Southern Crete and in the Messara seems to have lasted as long as in the East of the island. In the North and centre, however, we shall find reason to believe that it was fairly short-lived.

The long-spouted jar still occurs (e.g. Pl. XIII, 3, *d*), but there is a tendency even in the east to curtail the spouts after the Messara fashion (e.g. Pl. XIII, 4, *b*) and to adopt the squatter form which was popular in the south.[4] Before the end of E.M.III the ordinary 'hole-mouthed' jar has appeared (Pl. XIII, 3, *h*) with its horizontal handles, which imply the existence of larger varieties than the one shown.[5] The jugs, too, have lost their exaggerated spouts (Pl. XIII, 4, *a*, *c*, *e*) and have a tendency to a broad flat base, sometimes with a slight foot but always giving a somewhat squatter appearance than E.M.II examples. Note that the rivet is still shown at the base of the spout, though the shapes are no longer metallic. A two-handled vessel is shown in Pl. XIII, 4, *d*. But most typical of the period are the cups. The pedestalled cups of E.M.II have disappeared, at any rate from among the decorated fabrics, and the most common shape is the rounded tea-cup, usually without a handle (Pl. XIII, 3, *e* and *f*) but occasionally found with small horizontal handles up to four in number slightly below the middle. Pl. XIII, 3, *g*, shows a shape which has survived from the

[1] e.g. *Mochlos*, 97, and several examples from Trapeza. We have already noted in the previous section that imitations both in the true technique and in paint last on in other parts of the island into E.M.III. Cf. *Pseira*, 17.

[2] *Trans. Penn. Univ.*, II, 119; *Studies*, II, 93.

[3] A similar explanation probably accounts for the identical change from dark-on-light to light-on-dark decoration in Early Helladic times.

[4] *Mochlos*, Fig. 50, 92, in shape like our Pl. X, 1, *b*.

[5] *P. of M.*, I, Fig. 76, shows a jug with a vertical handle, a rounded body and a hole mouth, which is clearly the forerunner of those of M.M.I at Vasilike and Palaikastro. It is from Mokhlos.

previous period, a cup with a small open spout. A number of cups without this spout are known, some of them with a slightly flaring foot and with or without a vertical handle.[1] A more elaborate shape is shown in Pl. XIII, 4, *f*, which is to have a long history. It is to be noted that the handles are always either round or only slightly flattened in section. The strap handle has not yet appeared. Many of these cups are of very fine fabric, some of them almost meriting the term ' eggshell '.

An oval boat-shaped dish is occasionally found with an open spout at one end and a knob or a horizontal handle at the other.[2] An askos appears at Vasilike,[3] and anthropomorphic vases of the same type as the E.M.II vase described above (Pl. XII, 3) at Mokhlos and Koumasa.[4] Anthropomorphic and theriomorphic vases seem to be favourites in the Messara at this time. Xanthoudides figures[5] bulls grappled by acrobats, small jugs similarly grappled at the neck, a delightful fledgeling with its beak open and a series of askoi in the shape of birds which bear an astonishing resemblance to a middle Predynastic class in Egypt.[6] From the Messara also comes a queer type of vase exactly like a pair of trousers with very thin legs, which reappears again in M.M.I.[7]

For the best examples of the new white on black decoration we must look to the East (Fig. 11). No type of design which appears in any other part of the island is here unrepresented. Seager[8] would see two periods, examples from the second of which only have been found in an unmixed stratum and that in only one spot—the well at Vasilike. Typical of the first he makes the cross-hatched lozenges and circles, of the second the more conventional designs on the ' eggshell ' cups. But although the fact that two subdivisions can be made out is of great importance for the internal chronology of Crete in this and the next period, it is safer first to view the designs as a whole before drawing conclusions.

The great advance in design is the introduction of the curvilinear and spiraliform motives. The rectilinear patterns are merely an elaboration of those of E.M.II. The commonest

[1] *Trans. Penn. Univ.*, I, 194. [2] Ibid., II, 122. [3] Ibid., II, 120.
[4] *Mochlos*, 64; *V.T.M.*, 2.
[5] *V.T.M.*, all from Koumasa on Pl. XXVIII.
[6] *J.E.A.*, XII, 52. Cf. *Studies*, II, 103, note and references.
[7] *V.T.M.*, Pl. XXVIII, but cf. *Studies*, II, 44, for analogies from Thessaly
[8] *Trans. Penn. Univ.*, II, 122.

is a zigzag between lines running round the body of the vase, the resulting triangles being alternately hatched and left plain. Fig. 11, 1, shows the commonest scheme which occurs below the rims of cups. Pl. XIII, 3, *g*, shows it spread over the whole

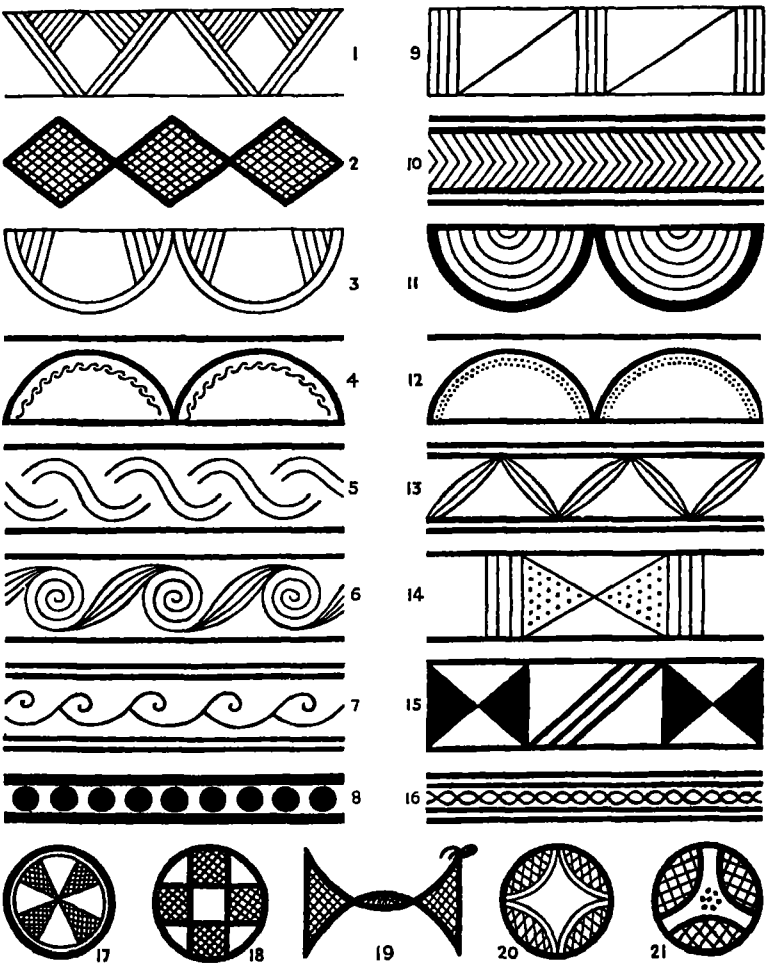


FIG. 11.—Patterns on Early Minoan III Pottery

vase. Most of the decoration, in fact, is confined by bordering lines which sometimes run up at a slant as in Pl. XIII, 4, *c* and *e*, or depend in loops as in Pl. XIII, 3, *d*. The general rule is horizontal designs, never the vertical ones which appear in M.M.I.

The introduction of curvilinear motives, however, is more important. The simple semicircle either above or below the line (Fig. 11; 3, 4, 11, 12) might be accounted for by supposing a revival of the incised designs of E.M.I, but when we come to the interlocked curves and the running spirals we must certainly look elsewhere, and certainly towards the Cyclades, where the spiral motive was already well known. In Crete, nearly every variation appears in this period, spirals with thick centres, simple forms of running or rather connected spirals, joined by one or more lines or by triangles (Pl. XIII, 4, *a*), and even an elaborate design taken from contemporary seal stones.[1]

But in this new passion for linking the designs the earlier free standing motive was not forgotten, and we find in the circles, decorated inside with hatched segments, squares or crosses, the true forerunners of the rosettes which are to be such a feature of later Minoan pottery. Sometimes, admittedly, the painter fell between two stools. He had a good single piece of decoration, but he felt he must keep up with the times, and what might well have been an effective design, if unconnected with its fellow on the other side of the vase, is spoiled by meaningless lines between the two, which only serve to exaggerate the intervening space by dividing it up in an ugly way.[2]

For the first time animal figures make their appearance. It is easy to see how they began. An adaptation of the old 'double axe' motive such as Fig. 11, 19, gave the idea of the body of an animal, and it is a small step to add the head of a goat at one end. Sometimes a hatched oval gave the potter the same idea and legs and ears are added.[3] Eventually animals designed as animals from the first appear.[4]

Before the end of the period polychromy is found, red paint as well as white being used on the black background. This may well be the result of a scheme of decoration not yet mentioned in which a part only of the vase was covered by white

[1] *P. of M.*, I, Fig. 77, from the Kamarais cave. It is the only good specimen of E.M.III pottery from the whole of the Messara district.

[2] e.g. Palaikastro, *B.S.A.*, *Sup.*, Fig. 5*c*.

[3] *Trans. Penn. Univ.*, I, Pl. XXVIII, 28.

[4] *B.S.A.*, *Sup.* Pl. III, 1. This sequence of events has already been seen in the faces on the Neolithic pottery at Trapeza, p. 41, above. Naturalistic forms result from chance resemblances in geometric patterns just as often as geometric patterns are the outcome of stylizing naturalistic forms.

designs on black, the rest being left its natural reddish colour.[1] The red is a deep Indian red, easily distinguishable from the lighter orange which comes in in M.M.I. It is used sparingly and the examples known are few. At Palaikastro a cup has alternate festoons of white and red and a small red circle surrounded by white dots; from Knossos comes a short-spouted jar with red lines bordered with white radiating up from the base.[2]

On the North coast, at Pyrgos, appeared a number of vessels of dark brown burnished pottery, often incised (Pl. XIII, 3, *a–c*). Though the cave is unstratified, vessels of this fabric are quite distinct from the earlier Sub-Neolithic, E.M.I, incised wares. Whether they are of local fabric, as Evans thinks, or actual imports from the Cyclades, it is hard to say. Personally, I am inclined to think they are the latter, but at all events there are among them the first examples of cylindrical pyxides which begin to appear in Crete at this point.

The burial larnakes, of which examples are found at Pakhyammos and Pyrgos, are of plain clay, oval, with a pair of vertical handles on each side near each end. The lids are flat. In the case of a smaller burial chest from Pakhyammos, which was decorated with a white trickle pattern on the buff ground, the lid was slightly vaulted and had a handle on each side at the top.[3]

E.M.III Stone Vases

The E.M.III stone vases at Mokhlos show a distinct decline. They are smaller and soft black steatite begins to be used to the exclusion of the harder variegated stones.[4] A fine exception, however, is a spouted cylindrical vase of breccia from Tomb XXIII.[5] The shapes, as in the succeeding period, are mainly confined to small bowls with lugs, and a higher shape of bowl with a hook handle,[6] the former shape occurring at Trapeza in some numbers.

It is probable that the bulk of the stone vases from the

[1] *B.S.A.*, *Sup.*, Fig. 5*a*, and several examples in the plates, *Trans. Penn. Univ.*, I. In a very few cases at Palaikastro dark-on-light patterns exist, but it is possible that they may belong to vases which have also light-on-dark. *B.S.A.*, *Sup.*, Pl. III.

[2] *B.S.A.*, *Sup.*, Fig. 5*d*; *P. of M.*I, Fig. 78.

[3] *Pachyammos*, Pl. XII.

[4] *Mochlos*, 101. Cf. the disuse of variegated stones in Egypt after the IInd Dynasty.

[5] Ibid., 80, and Pl. III, called in one place E.M.II but presumably finally dated by the tiny marble pyxis from the same tomb.

[6] Ibid., Fig. 37, XVI, 5.

Messara is to be dated to this period. Some of them are in variegated stones (e.g. Pl. X, 3, *d* and *e*) but the whole impression is drab in the extreme. The bowl with a hook handle appears in some quantity, but the favourite shape is the ' bird's nest ' vase decorated with incised patterns (Pl. X, 3, *c*) and frequently having one or more minor depressions round the main cavity, and the small bowl with marked rim and foot (Pl. X, 3, *e*). The first continues into the next period both here and elsewhere, but the second seems to be exclusively a product of the Messara and of this period. Slightly less common is the type shown in Pl. X, 3, *d*, with a marked rim and a body swelling out below. This shape is almost invariably incised, whether as in the present case by mere ribbing below the rim or by hatched triangles rising from the widest point of the body. The ' pepper and salt ' vases continue, as can be seen by the way in which the patterns incised on them keep pace with those on the ' birds' nests '. Another shape, rather uninspired, which probably appears at this date, is a vertical-sided cup.[1]

The oblong stone palette on four stumpy legs or with a convex underside has interesting Egyptian parallels.[2]

*E.M.*III *Metalwork*

The metalwork is indistinguishable from that of E.M.II. Bronze is still unknown. The long daggers are firmly established, though the triangular form seems still to be used.[3]

*E.M.*III *Figurines*

The figurines are now much more highly developed. This is no doubt due to the importation of marble examples from the Cyclades (Pl. XII, 2) and it is easy to see their influence on those made locally. The most direct copies are those of bone, which seem to be a local product of Lasithi (Pl. XII, 1, top row), since only one example has hitherto come to light at any site other than Trapeza.[4] Unlike their Cycladic prototypes, some of them at least have a split apron and seem distinctly male, but their origin is obvious.[5] Whether the two small gypsum objects at the bottom of the same plate are to be considered as in any way connected with the fiddle-shaped ' idol ' of Cycladic origin (Pl. XII, 2, top centre), or whether they are merely very

[1] *V.T.M.*, Pl. XXXIX, *a*, 1062, also an example from Trapeza.
[2] Ibid., 36.
[3] *Mochlos*, 107, and Porti, where the absence of a single E.M.II sherd makes it improbable that the tomb was built before E.M.III.
[4] Agia Triadha. Banti, *Annuario*, XIII–XIV, 191, No. 134, *a*.
[5] Very few of the Cycladic figurines are male, but in such cases they always seem to be shown performing some action like playing on a harp or a flute.

primitive local products, it is hard to say. In the Messara Cycladic figurines appear in considerable numbers and seem to have been greatly prized, since in many cases they were mended in antiquity.[1] Yet it is curious that, unless we take some of the examples in stone other than marble as slavish local copies, they do not seem to have affected the local type to anything like the extent one would expect. Indeed, the figurines which we might reasonably assign to this period seem rather to be descendants of the primitive ones of E.M.II,[2] although they widen at the base, as if to represent a skirt. Their hands are clasped over their chests instead of hugging their stomachs, and if we are to look outside Crete for their forbears, we shall have to go to Mesopotamia, to the statues of the Sumerian Ur-nina of Lagash.[3]

E.M.III Seals

Hand in hand with the figurines go the seals, since we begin to find at this period the handle of the seal frequently carved to represent a bird or animal. The most delicate of these, which from the pattern on its base is clearly E.M.III, was found at Trapeza (Pl. XIII, 2). It is of ivory, a very favourite material at this time, and represents a monkey. Others show a dove with its young, a boar's head, a lion crouching over its prey, an ape and a two-headed bird (Pl. XIV, 1). Conical and pyramidal tops are also known as well as three-sided seals, cylinders with engraving at either end, flat two-sided seals, button seals and signets. After ivory, steatite of various colours is the commonest material.

The East of Crete is remarkably barren of seals. The centre of the island is represented by a few examples bought from villagers and some from Trapeza. The tombs of the Messara therefore give us practically our only criteria, and though the argument *e silentio* is always dangerous, we are, I think, justified in this case in believing that the centre of the art was here in the South and that thence it spread, but very slowly, to other parts of the island. Owing to lack of stratification, the attribution of seals to this period must be on stylistic grounds, but it is comparatively safe, for, as we have seen, E.M.II need hardly be considered, while M.M.I will provide enough stratified examples to distinguish its own types quite clearly.

The richness and variety of the patterns is extraordinary,

[1] *V.T.M.*, 21; *P. of M.*, I, 115.
[2] Banti, op. cit., 246, but see below.
[3] Hall, *Ancient History of the Near East*, Pl. XII, and see below.

particularly when one considers that this is a new art. Some external influence must have come in.

The spiral in different arrangements is a frequent design (Fig. 12, 3). A looser variety becomes the curvilinear meander, and it has been suggested that the rectangular meander (Fig. 12, 1) is a derivation of this form under the influence of textiles.[1] At all events this pattern, its simpler form (Fig. 12, 5), and its complicated descendant the labyrinth, all make their appearance at this period. Rosettes occur as one would expect.

But the most important feature is the regular introduction of animals and of human figures. A number of seals from Platanos, of the cylindrical type, bear such representations. Best of all is one which shows a procession of lions round the circumference and of spiders round the centre of one end, while the other has three scorpions.[2] Apes and wild goats are found.[3] Human figures of a rough kind appear,[4] as well as

1 2 3 4 5 6

FIG. 12.—Early Minoan III Seals

boats and fishes (Fig. 12, 4), the prototypes of the marine subjects which form so large a part of the later Minoan repertoire.[5] A useful design from a dating point of view is, as we shall see, the ' double sickle ' motive (e.g. Fig. 12, 2), which appears on button and bead seals.

In almost every case the grouping is extremely effective and the field is filled admirably in a way which for a new art is most surprising. The cases in which an effective design has not been attained seem to be rather the fault of the particular artist than evidence that the principle was not understood.[6]

E.M.III Jewellery

The jewellery is hard to distinguish from that of E.M.II, and the only objects which we can with comparative safety

[1] *P. of M.*, I, 121. Cf. the figure on the sword-hilt from Mallia. *B.C.H.*, LX, Pl. XXXVIII, 2, of L.M.I date.

[2] *V.T.M.*, Pl. XIII, 1039. Note that the scorpions are headless as in Egypt. Cf. Gardiner, *Egyptian Grammar*, 468.

[3] Ibid., 1044, 1103.

[4] *P. of M.*, I, Fig. 87, 6, and Fig. 93. [5] Ibid., Fig. 89*b*.

[6] e.g. *V.T.M.*, Pl. IV, 516; Banti, op. cit., Figs. 88, 100.

attribute to this period are the cylindrical pendants decorated with applied spirals in gold wire or with simple leaf patterns in *répoussé* work.[1] The slight collars at each end are noteworthy. Beads of steatite, rock crystal, sard, and cornelian occur. The shapes are spherical, tubular, flattened discs, and, for the first time, amygdaloid.[2]

*E.M.*III *Foreign Relations*

Stratified imports are again lacking for this period, although certain scarabs and seals from Agia Triadha, Aspre Petra, Platanos and Marathokephalo must almost certainly belong to the E.M.III deposit in the tombs.[3] But more important are the cases where designs on seal stones find their obvious counterparts in Egypt. Whether or not such seals as the scaraboid with the top in the form of a weasel from Porti[4] is an import or a local imitation is of little consequence, for a glance at a representative collection of Egyptian seals well dated to the First Intermediate Period (i.e. VIIth–Xth Dynasties) shows that practically every single linear design found in Crete as well as the shapes of the back of the seals are closely paralleled.[5] The button seal is typical of the period, as is also the introduction of the scarab and the animal figure on the back. The human figures reversed so that the head of each is by his neighbour's foot occur in Egypt, and Evans has made out a 'family tree' beginning with the two reversed lions and leading to the double sickle pattern (Fig. 12, 2).[6]

Many of the parallels are too close, especially when taken together with the actual imports, to be anything but proof of direct contact between Egypt and the Messara at this period. Frankfort has, however, given reason to believe that many of these features are themselves introduced into Egypt at this time from Syria and that many of the animal-shaped seals from Crete are nearer to the parent Syrian stock.[7]

However that may be, it seems safer to assume contact between the Messara and a strongly Syrianized state in the Delta of Egypt than, in the absence of any evidence in East Crete, to allow direct contact with Syria itself.

[1] e.g. *V.T.M.*, Pl. XV, 455, &c., and LVII, top row.
[2] e.g. Ibid., Pl. LVIII.
[3] *Aegyptiaca*, 9, 29 and 35.
[4] *V.T.M.*, 68.
[5] Cf. *V.T.M.*, Pls. VIII, XIV, XV, with Brunton, *Qau and Badari*, I, Pls. XXXIII and XXXIV.
[6] *P. of M.*, I, 123, Fig. 92.
[7] *J.E.A.*, XII, 90 and 94; *Studies*, I, 132; II, 122. As for the ivory, elephants were found in Syria as late as the fifteenth century B.C., so that both areas had an equal opportunity of acquiring it.

Against this must be put the evidence of the figurines. The draped type with its hands folded over its chest is much closer to Mesopotamia than to anything else, and if the unstratified ivory head with traces of shell inlay in the eyes from Trapeza shown in Pl. XIII, 2, is not an import it was certainly made by a craftsman who had studied the art on the spot.[1] The extremely high dates to which the nearest parallel must be put, i.e. before the time of Sargon, means either such figures continued to be made in Syria for some hundreds of years after they disappear in Mesopotamia or else that we must push back the Messara figurines to E.M.II—a not impossible conclusion, but one which leaves a gap in the series which is hardly filled by the Cycladic figurines. This conclusion is more difficult when we think of the great strides made in engraving as shown on the seals.

The stone palettes have already been mentioned. The Egyptian parallels are of much earlier date, being predynastic and protodynastic, though they may well have survived, for an example was found in use at Tell el-Amarna.[2] The Egyptian examples, however, are flat on both sides, whereas the Minoan examples are either convex below or have four short legs. In any case it is not so much the object itself as the proof of a similarity of customs in regarding paint as an article of toilet which is important.

A good parallel to the anthropomorphic vases is found in an XIth Dynasty deposit at Rifeh.[3]

The pyxides and figurines from the Cyclades have already been mentioned. In addition to these, a number of vessels of island marble and Cycladic shape appeared at Mokhlos.[4] All of these imports date to Early Cycladic II and III, by which time the spiral had made its appearance.[5] The great increase in the number of obsidian blades wherever E.M.III objects occur is further proof of close contact with the islands.

E.M.III Chronology

Leaving aside the doubtful evidence of the figurines and palettes, we find that the seals, which are the most typical pro-

[1] Cf. this head with one found in the Second Oval Temple at Khafaje (*c.* 2800 B.C.–2600). *O.I.C.*, 19, Fig. 75 and p. 85. Dr. Frankfort, however, would prefer to attribute our head to the Syrian civilization of which we are only now beginning to learn.

[2] References *V.T.M.*, 129; *City of Akhenaten*, II, 43.

[3] *P. of M.*, II, 258.

[4] e.g. *Mochlos*, Pl. III, XXI, 10, Fig. 46, VII, *a*.

[5] Cf. *B.M. Cat.*, I, 1, XXVIII f., and group given in Child's *Dawn of European Civilization*, Fig. 22.

duct of the period in the Messara, show a strong resemblance to types which are datable with certainty in Egypt to the First Intermediate Period, that is to say, from the end of the VIth Dynasty to the beginning of the XIth, from about 2500 to about 2200 B.C.

SITES WHERE EARLY MINOAN III REMAINS HAVE BEEN FOUND

CENTRAL CRETE

(a) Excavated Sites

AMNISOS . . .	Cave . .	Vases from cave of Eileithyia. Marinatos, *Πρακτικά*, 1929, 95; 1930, 91.
ARKALOKHORI .	Cave . .	Many sherds from outside the entrance. Hazzidakis, *B.S.A.*, XIX, 35.
KASTELLOS TZERMIADHON	Settlement	Traces on the summit. Excavated in 1937 by the writer.
KNOSSOS . . .	Buildings	Hypogaeum; latest deposit on the house floors S. of the Palace. *P. of M.*, I, 103 ff. Cycladic figurines and copper daggers found at the Teke on the Candia road. *Arch. Anz.*, 1933, 298.
KRASI	Tomb .	Some of contents of circular tomb. Marinatos, *Ἀρχ. Δελτ.*, XII, 102.
MALLIA . . .	Deposit .	Sherds. Chapoutier, *Mallia*, I, 13; II, 27. *B.C.H.*, 1928, 368.
	Cemetery	Rock shelters on the coast. *B.C.H.*, 1929, 527.
PYRGOS . . .	Cave . .	Burials in larnakes. Xanthoudides, *Ἀρχ. Δελτ.*, 1918, 136.
STRAVOMYTI . .	Cave . .	Sherds from excavations of 1898. Evans, *P. of M.*, II, 68.
TRAPEZA . . .	Cave . .	Vases, &c., from excavations of 1936. *A.J.A.*, XL, 371. *Arch. Anz.*, 1936, 162.
TYLISSOS . . .	Settlement	Earliest sherds from first period of occupation. Hazzidakis, *Tylissos Villas Minoennes*, 79. *Ausonia*, VIII, 76 ff., Fig. 12.

(b) Surface Finds

GAZE	One sherd found in the cutting of the road by Miss Money-Coutts and Miss Eccles, 1934. *B.S.A.*, XXXIII, 92.
KANLI KASTELLI .	Sherds from Visala E. of the village. Evans, *P. of M.*, II, 71.

SOUTH CRETE

(*a*) *Excavated Sites*

AGIA TRIADHA. .	Tomb	Some of contents of circular tomb. A. Banti, *Annuario*, XIII–XIV, 164 ff. *Mon. Ant.*, XIV, 677.
	Houses .	Contents of some houses below main court of palace. *J.H.S.*, XXXIII, 365.
DHRAKONAIS . .	Tombs .	Some sherds from the circular tombs. Xanthoudides, *V.T.M.*, 76.
KAMARAIS . .	Cave .	One vase and a few sherds. Dawkins, *B.S.A.*, XIX, 1.
KHRISTOS . .	Tomb	Vases, &c., from circular tomb. Xanthoudides, *V.T.M.*, 70.
KOUMASA . . .	Tomb	Some of contents of circular tomb B. Ibid., 3.
MARATHOKEPHALO	Tomb	Some of contents of circular tomb. Xanthoudides,' *Αρχ. Δελτ.*, 1918. *Παρ.* 1, 14 ff.
PHAISTOS . . .	Deposit	Sherds and Vases. Mosso, *Mon. Ant.*, XIX, 204. Pernier, *Festos*, 115.
PLATANOS . . .	Tombs	Earliest contents of circular tomb B and smaller interments. *V.T.M.*, 88.
PORTI . . .	Tomb .	Earliest contents. Ibid., 57.
SIVA	Tombs .	Latest deposit in the circular tombs. *Ausonia*, VIII, *Sup.*, 13 ff.
VOROU . . .	Tombs .	Earliest deposit from circular tombs. Marinatos, *'Αρχ. Δελτ.*, 13, 155.

EAST CRETE

(*a*) *Excavated Sites*

AGIA PHOTIA . .	Cave . .	Sherds from burials. Boyd-Hawes, *Trans. Penn. Univ.*, I, 183. *Gournia*, 56, 60.
GOURNIA . . .	Deposit .	Large deposit of sherds from a trench to the N. *Trans. Penn. Univ.*, I, 191. *Gournia*, 57.
MOKHLOS . . .	Tombs .	Contents. Seager, *Mochlos, passim.*
	Settlement .	Deposits below later houses. Seager, *A.J.A.*, XIII, 274.
PAKHYAMMOS . .	Tombs .	Child burials in pots. Larnax burials. Seager, *Pachyammos*, 9.
PALAIKASTRO . .	Bone enclosures	Bosanquet, *B.S.A.*, VIII, 292. At Ellenika, Ibid., X, 196. At Kastri, Ibid., XI, 268.
	Deposits	In the town site. Ibid., IX, 300. *Sup.*, 7.
PSEIRA . . .	Settlement	Deposits in houses of first period. Seager, *Pseira*, 17.

SPHOUNGARAS	Tombs	Larnax burials and others. Hall, *Sphoungaras*, 48. Hawes, *Gournia*, 56.
VASILIKE . . .	Settlement	Poor deposits in the 'House on the Hill'. Good deposit in the Well. Seager, *Trans. Penn. Univ.*, I, 218; II, 118.

Chapter III

THE MIDDLE MINOAN PERIOD

I. MIDDLE MINOAN I (M.M.I)

(See Map 7)

IN M.M.I the swing of power has gone to the North and centre of Crete, and the first elements of the great palaces appear. When the pottery is discussed reasons will be given for believing that in this part of the island the period overlapped E.M.III elsewhere [1] and that the earliest style of vase painting, M.M.I*a*, was almost confined to Knossos. It is symptomatic of this centralization that M.M.II never reaches most sites which continue with a local form of the M.M.I*b* style until M.M.III. M.M.II will be treated in a separate chapter, but it must not be forgotten that it is a local development of M.M.I, nor that the earliest protopalatial remains at Knossos and Mallia are contemporary with the latter half of E.M.III in the Messara and in the East.[2]

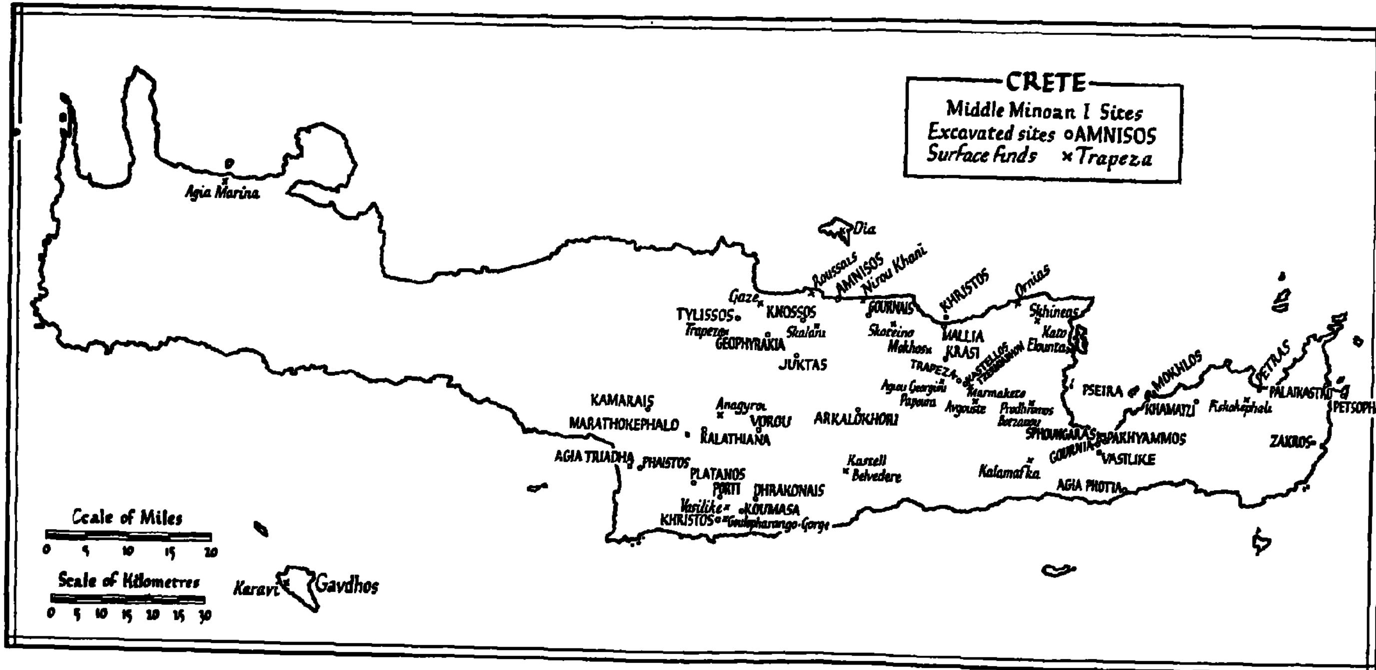
To some time early in the period must be attributed the regularization of the great route across the island from Komo in the South to Knossos, for not only does the fort at Anagyroi [3] guard the road but it is clear that the monumental entrance to the Palace at Knossos was also founded.[4] Another route to the coast from the Messara was considered worth guarding and remains of a small station are visible at Agia Paraskeve at the top of the Goulopharango Gorge which leads down from

[1] *P. of M.*, I, 108.

[2] Very good evidence for this was found in June 1937 on the Kastellos Tzermiadhon in Lasithi. Here a house was excavated which had clearly been continuously occupied. Below the floors and in the interstices of the walls was M.M.I. pottery. The deposit *on* the floors was uniformly M.M.III, and outside, round about the base of the walls, was a mixed dump of M.M.I and M.M.III. Not a single M.M.II sherd was found.

[3] Is this a local contraction for Agioi Anargyroi?

[4] Ibid., II, 146. *c*. In its final form it no doubt dates from M.M.III.


CRETE
Middle Minoan I Sites
Excavated sites oAMNISOS
Surface finds ×Trapeza
Agia Marina
Dia
Roussolakkos
AMNISOS
Nirou Khani
Gaze
TYLISSOS
KNOSSOS
Trapeza
GEOPHYRAKIA
Skalani
JUKTAS
GOURNAIS
Skoteino
Mokhos
KHRISTOS
MALLIA
KRASI
TRAPEZA
Ornias
Skhinea
Kato Elounta
Marmaketo
Avgouste
Papoura
PSEIRA
MOKHLOS
PETRAS
KHAMAIZI
PALAIKASTRO
PETSOPHAS
SPHOUNGARAS
PAKHYAMMOS
GOURNIA
VASILIKE
ZAKROS
AGIA PHOTIA
Kalamafka
KAMARAIS
MARATHOKEPHALO
Anagyroi
VOROU
KALATHIANA
ARKALOKHORI
AGIA TRIADHA
PHAISTOS
PLATANOS
PORTI
DHRAKONAIS
Kastell
Belvedere
Vasilike
KOUMASA
KHRISTOS
Scale of Miles
0 5 10 15 20
Scale of Kilometres
0 5 10 15 20 25 30
Karavi
Gavdhos

MAP 7

the M.M.I site at Vasilike to Trypeti, though at the latter point no surface traces of this date remain.

M.M.I Architecture

The foundation of the Palace of Knossos must be put at the very beginning of M.M.I. Such structures as had stood on the top of the mound were swept away, mainly to the North-West corner, where they served to level up yet more of the area, and a great central court was formed. Round this court were grouped isolated blocks of buildings—'insulae' many of them with rounded corners. To the North was a long paved court, the remains of which extend at either end

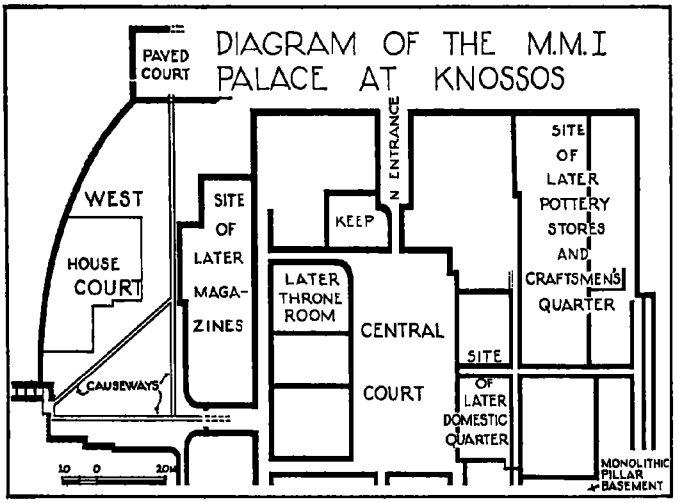


FIG. 13

from below the later 'Theatral Area'. To the West was another court bounded by a heavy enceinte wall and approached from the West by means of a ramp. Immediately within the wall lay a number of houses whose cellars descended below the level of the court.[1] Across the court ran slightly raised causeways. In the South-East corner lay two entrances to the Palace. One ran straight through eastwards to the Central Court past a number of magazines, the other ran South, through some prototype of the later West Porch, and no doubt followed very much the same line as the Corridor of the Procession, to be joined at some point by the stepped approach

[1] *B.S.A.*, XXX, 53. *P. of M.*, IV, 50 ff.

from the South mentioned above. A broad entrance led from the northern court guarded by a strongly walled 'keep', the main lines of which were preserved till the end of Minoan times. The West wing of the Palace was split in two by the long North–South corridor which later served the magazines. West of this the remodelling has been too complete to allow of reconstruction, but between the long corridor and the Central Court the blocks of buildings into which the later palace falls clearly mark the site of the various insulae. Clearest of all is the block occupied during the latest palace period by the Throne Room system. Here the rounded corner still survives. East of the Central Court the Palace sloped down in a series of narrow terraces to the great east wall which is still visible.

It is extremely probable, in view of the continuity of the Palace's history, that many of the later passages and corridors mark the position of open lanes between the isolated blocks.

To these earliest elements in the Palace belongs the Monolithic Pillar Basement, a well-preserved structure which may have formed part of a more elaborate building. The two rectangular piers are the first examples of the pillars which are to be so common later (Pl. XV, 2).

The Palace at Mallia also dates from the beginning of M.M.I and presents many of the same features, though the most recent research tends to stress the amount of remodelling carried out in M.M.III. The original elements, however, the Central Court, courts to West and North with direct access to it, and the way in which even in its present state it seems to split up automatically into semi-independent blocks, go to show that in essentials it remained the same (Pl. XV, 3).

In M.M.I*b* the western façade of Knossos was remodelled. The earlier rounded corners were abolished and the entrance direct to the Central Court was blocked. The main features of the present façade with its gypsum orthostates belong to this period, as does much of the terracing to the South.

At Phaistos it would seem that the Palace was founded in M.M.I*b*, for the pottery of deposits immediately prior to its foundation are of a type which we shall see is transitional between E.M.III and the M.M.I of the South and East.[1] Here the conformation of the site, placed as it is on the brow of a steep hill which descends rapidly on three sides, precluded the adoption of the rectangular plan of Knossos and Mallia.[2] To the West lay (Pl. XV, 4) a paved court, crossed like that

[1] *Festos*, I, 135, Fig. 59. [2] Ibid., Pl. II.

at Knossos by causeways which led to an entrance in the middle of the West façade.[1] At a higher level to the North is another court, which however occupies only a small area.[2] The Central Court is bordered by buildings only on the West, North and northern part of the East sides, the remainder running up to the edge of the plateau. A series of heavy walls to the North by the later entrance passage implies perhaps that originally a broad entrance comparable to that of the same period at Knossos led into the court at this point. Of the internal arrangements no more can be made out than at Knossos, for the great rebuilding in M.M.III seems to have been even more thorough.

Except for the facing of ashlar in limestone or of gypsum slabs bound by wooden bars dovetailed into mortices which front walls of rubble in the great buildings, the masonry is usually of small stones roughly dressed, sometimes very neatly and carefully laid.[3] The foundation blocks were often of great size, as in the case of the old West façade at Knossos, but the actual walls seldom show a block more than 35–40 centimetres in length. The stones are invariably hammer-dressed, the saw not yet being used for masonry.

The rounded corners seem to be peculiar to Knossos, and since there is no topographical reason for them as there is in the house at Khamaizi (see below), we must look elsewhere for the explanation. They are not a natural construction in either brick or stone, although examples in the former occur in Mesopotamia in the Larsa Period.[4] What they are typical of is a wooden or reed palisade, and it is just conceivable that at Knossos we have in these ' block houses ' the survival of a tradition which is very old indeed.

Another feature which is common to the West façades of the three early palaces is the base slab or podium, which projects

[1] It is not made clear in the text but it seems most likely that the addition of steps at the North end of the court and the construction of a single-columned propylaeum corresponding to the Theatral Area and the West Propylaeum at Knossos are the work of M.M.II.

[2] Right up against the West wall of this court is a row of holes, obviously for columns of wood. They are too close to the wall to be part of a verandah and it is clear that the wall is contemporary with the paving. They may have been merely a decoration.

[3] e.g. *P. of M.*, I, Fig. 109, and to a less extent *Festos*, I, Fig. 54.

[4] e.g. at Tell-Asmar and a doubtful earlier example (Early Dynastic) at Khafaje. *O.I.C.*, 17, p. 70, Fig. 60. They were always at street corners where baggage animals might knock against a sharp corner. Perhaps the Knossian examples were rounded for the same reason.

in some cases nearly half a metre beyond the orthostates and is often as much as 40 centimetres high. No explanation of this has been given and in succeeding periods it either disappears or is reduced to a matter of a centimetre or two.[1]

The slight set-backs or recesses in the walls of the façade also are puzzling. At Mallia, both in the West Court and on the South side of the Central Court, they are regular; at Phaistos they occur, but the façades are too ruined for us to say more than that; and at Knossos they are quite irregular. They never seem to bear any relation to a room behind.

They have been explained as survivals of the bays between the square projecting towers on an outer wall.[2] But in such a case one would expect them, however irregularly the towers had been spaced, to assume some sort of symmetry once their origin had been forgotten. Again it has been suggested that they are devices for breaking the monotony of a wall by a play of light and shade.[3] But to this also it can be objected that symmetry would be at least a certain consideration, while at Mallia, where the recesses are symmetrical, the South façade of the Central Court would receive no sun to cast a shadow, while most of the West façade would itself be shadowed until late evening by the projection of buildings farther South. An explanation is the more desirable because several of the angles come immediately in the middle of the only possible position for windows in the upper story at Knossos if such existed.[4]

To the very beginning of M.M.1*a* must be put the houses inside the western enceinte wall at Knossos.[5] Only the basements remain, but in one case there are two floor levels separated by 50 centimetres of filling. On both floors the deposit was pure M.M.1*a*. In the other house a flight of red plaster steps led down to a room also paved and lined with red plaster, which contained in one corner a shallow oblong receptacle formed by ridges of plaster, and in the centre of the room a shallow sunken circle with a deeper depression in the middle (Pl. XVI, 1). It is possible that this bowl was intended to receive offerings—indeed, the room as a whole rather reminds one of the later sunken lustral areas—or it may have had a brazier standing over it and have been for convenience in

[1] Professor A. B. Cook suggests to me that it may be a survival of the stone base of a crude brick wall.
[2] *P. of M.*, I, 269.
[3] *Mallia*, II, 10.
[4] See Fig. 31 below, and p. 186.
[5] *P. of M.*, IV, 66; *B.S.A.*, XXX, 53.

brushing up fallen ashes. Demargne [1] inclines strongly to this view and compares it to the fixed hearths found in some of the M.M.1*a* houses at Mallia. A big tray in thick red clay with horizontal handles and distinct traces of carbonization was found in the house and the diameter exactly fits the hollow.

Owing to the fact that both the houses were razed to the ground and had their cellars filled in when the West Court was extended in M.M.II, the plans are not very helpful, but a magazine with deep bays like the Monolithic Pillar basement and a possible light well between the westernmost house and the enceinte wall can be distinguished.

The construction throughout is of small rough stones bonded by clay. Traces of bricks, originally unbaked but burnt red

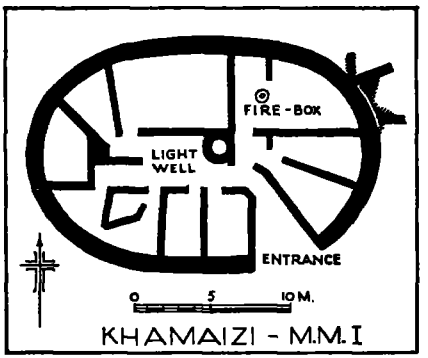


FIG. 14

by some fire, were discovered, as in the South-East quarter of the Palace at Mallia. The good red plaster reminds one somewhat of the early Vasilike houses, and traces of the same plaster, evidently from an upper floor, were found at various levels above the magazine.

Slightly later in M.M.I comes the unique oval house at Khamaizi (Fig. 14). Mackenzie has clearly demonstrated that its shape is fortuitous, determined by the lie of the ground, rather than a regular form or an introduction from elsewhere.[2] He has pointed out that it is in essentials a rectangular plan modified to fit an oval perimeter.[3] Its plan is interesting in that it is built, like the palaces, round a central open court or light well. In this it contrasts not only with the houses of

[1] *B.C.H.*, XXXII, 87, but at Khamaizi there was a movable one.
[2] *B.S.A.*, XIV, 415 ff. [3] Ibid., Figs. 20 and 21.

earlier periods but also with the only other M.M.1 houses of which we have a comparatively complete plan: House A at Vasilike (Fig. 15), where a number of rectangular rooms are thrown together with little attempt at organized planning, and a few houses at Kalathiana which are square in plan. One of them, House H, has a well-squared stone facing and the set-backs we have noticed in the palaces. In the other settlements of the period, as at Pseira, Mokhlos, and Palaikastro, later building has effectively prevented the recovery of the plans. It is fairly certain, however, that except for Khamaizi the private houses show no more regularity of plan than did those of E.M. times.

In connexion with the architecture mention must be made

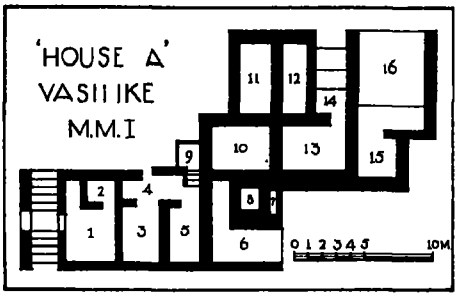


FIG. 15

of the earliest traces of the elaborate system of drainage and arrangement for water supply at Knossos.[1] Good examples of the clay pipes were discovered below the South Porch and below the Corridor of the Draughtboard. They are about three-quarters of a metre long and taper sharply, so that the resulting head of water drives out any obstruction. They have narrow collars which fit neatly into the next pipe where they are cemented. It is possible that the Minoan engineers had already discovered the principle that water finds its own level, for under the South Porch the pipe-line shows an upward slant of more than one in twenty. At this point, however, they are laid on the earth which filled the Hypogeum and may therefore have sunk. So certainty is impossible.

M.M.1 Tombs

In the Messara a number of the circular tombs are still in use. At Vorou and Dhrakonais the main deposit belongs to this period, while at Agia Triadha the deposit is so rich that special annexes seem to have been built to contain the offerings. This

[1] *P. of M.*, I, 141.

leads one to believe that in many cases the deposits are of a votive rather than of a funerary nature.

It has been noted above, when the tombs were first described,[1] that the site of one or two of the settlements was changed. Where this is so and a new settlement was founded close to the E.M. tomb, that tomb is no longer used.[2]

In East Crete the rectangular ossuaries of Palaikastro and the built tombs of Mokhlos are still in use and indeed still being built. Larnax and pithos burials are becoming more common, as at Pakhyammos and Sphoungaras. In one case, at Agia Photia, sherds were found in a rock shelter.

In North and Central Crete the rock shelter still seems popular as a burial-place. The rectangular ossuary, however, has come in at Gournais and has reached its most elaborate form at Mallia. Here, between the Palace and the sea lies the spot known for generations as Khrysolakkos, the Pit of Gold, from the quantity of gold ornaments discovered by the peasants digging at random. Excavation brought to light a magnificent ossuary surrounded by a wall of well-dressed stones, outside which was a paved area. Within the boundary wall were innumerable chambers of varying size, all built of small stones, in which were heaped the bones of the dead with their funeral furniture around them. One of the chambers, however, was in the nature of a place of offerings, for to one side stood a low fluted base of stucco, which was at first believed to be part of the shaft of a column, but which later investigation proved to be hollow and probably intended to receive libations.[3]

M.M.I Sanctuaries

In M.M.I we find a new type of building, the sanctuary on a peak. Juktas South of Knossos, Prophetes Elias above Mallia, and Petsophas above Palaikastro are good examples; Zakros, Khristos and Piskokephali seem also to be of the same nature, while the structure on the top of Edhikte near Mokhos is more likely to be a sanctuary than a fort guarding a non-existent road.[4]

Juktas, though we do not know its ancient name, was the legendary burial-place of Zeus, and the origins of its sanctity

[1] See above, p. 60.

[2] Koumasa alone is the exception and there the M.M. sherds were not associated with burials, but were outside as if they were offerings at shrines.

[3] *B.C.H.*, 1933, 74.

[4] It does, however, look out over the Gulf of Mallia, and could be a '*Βίγλα*', or look-out post, as opposed to a '*Φρούριον*', or fort.

are lost in the mists of time.[1] Surrounding the northern peak is a massive temenos wall, which, together with the fragments of large pithoi, denotes the possibility of the summit having been a city of refuge, a Kresphygeton, in times of trouble. The sanctuary itself almost overhangs the steep western face of the mountain. The actual building seems to date from L.M.I, but the plan is so primitive that we may be almost certain that some structure, perhaps of more perishable materials, stood here from M.M.I. It consisted of an outer room, approached by an ascending entrance passage and flanked by a store-room. Behind this was a rectangular inner chamber, some 5 by 8 metres, floored, in later times at least, with white plaster. Votive offerings in the shape of vases and figurines dating from the very beginning of M.M.I until M.M.II were found in a stratum of grey ash immediately overlying the rock. Above this was a stratum of burnt earth containing M.M.III sherds which extended beyond the limit of the building.

No plan of the sanctuary at Mallia has been published. At Petsophas the history of the sanctuary is similar to that of Juktas. A lower layer of black earth and ash containing the M.M.I figurines, above this a disturbed layer, also M.M.I, and finally a building of almost exactly the same type as the L.M.I building on Juktas, even to the white plaster floor. An additional feature, however, is a plaster bench surrounding the inner room on three sides. In this case there was some evidence for believing that the walls of the later building corresponded in part at least to those of the earlier.

The sanctuary at Khristos is a rectangular building with a square projection in the middle of its East side. Below the main chamber runs a great cleft in the rock, now choked with fallen stones, which may have been the entrance to a cave.

It is possibly at this period that caves ceased to be places of burial and became places of worship. At Trapeza no burial could be assigned to M.M.I, which was in any case a scanty deposit. Nor do any of the other caves, Eileithyia, Arkalokhori, Agia Marina, Skoteino, the second Trapeza near Tylissos, or Kamarais, which contain M.M.I deposits, seem to have any human bones associated with them.

M.M.I Pottery

The earliest phase of M.M.I pottery is excellently represented at Knossos, less well at Mallia, where the action of the soil has

[1] *P. of M.*, I, 153. Professor A. B. Cook would derive the word from *Διώκτας*—the Pursuer from the legend of Minos' pursuit of Britomartis. *Zeus*, II, 939, n. 1.

destroyed the paint, and hardly at all elsewhere, save for a few poor examples from Tylissos and Giophyrakia. This, coupled with the fact that there is a very small quantity of E.M.III found at these Northern sites compared with the richness of that period in East and South, is good evidence for M.M.I being well under way in this part of the island while E.M.III was still generally in vogue at the other sites.

The slow wheel has already come in and many of the vases show parallel striations on the base where they were cut off by means of a string. Much, however, is still done by hand, as witness the pinching in by the fingers of the stems of cups and the paring of jugs, jars, and cups.

Two very early pure deposits have come to light which really represent a period transitional between E.M.III and M.M.I*a*. One was below the floor of the Vat Room,[1] the other was the deposit on the earliest floor in the house inside the West wall.[2] In both deposits were vases which can be described as ' borderline cases ', e.g. Pl. XIV, 2, 1 (with a band of Indian red and incisions), 4, 12 and 18 and *P. of M.*, I, Fig. 118*a*, 1 and 2 (where the patterns are in the new M.M.I chalky white paint). In the Vat Room deposit also are several incised Cycladic pyxides, such as we have seen appear at Pyrgos in E.M.III. The rest of both deposits, however, is typical of very early M.M.I*a*, while the upper levels of the house, together with all the contents of the other house, contain an almost complete corpus of mature M.M.I*a* pottery, including the polychrome style.

As further proof of the closeness in date of M.M.I*a* to E.M.II at Knossos the common short-spouted jug in buff clay with the butterfly or double axe pattern in front in red paint may be mentioned [3] as well as the persistence of other dark-on-light designs which elsewhere had died out (Fig. 16, 2 and 3, and a number of examples on Pl. XIV, 2). Dark on light and light on dark, in fact, go hand in hand. The creamy white has given way to a more flaky, chalky white, the Indian red has become orange and the black background of E.M.III now varies from lavender grey to purplish-brown.

The most typical vases of the period, which are invaluable for dating purposes, are the small jugs with a short cut-away neck decorated usually with a broad leaf-like slash of paint

[1] *P. of M.*, I, 165. [2] *B.S.A.*, XXX, 60.
[3] e.g. *P. of M.*, I, Fig. 118*a*, 9 and 21.

drawn diagonally across each shoulder, two white lines to mark the centre of the leaf and bands round the neck and body (e.g. Pl. XIV, 2, 13).

Even commoner are the handleless cups with or without pedestal which were decorated below the rim with a band either

FIG. 16.—Patterns on Middle Minoan *1a* Pottery from Knossos

of red or black paint on buff or of white on black. A more elaborate pattern and one curiously anticipating L.M.*1a* is shown on Pl. XIV, 2, 8, where the red spikes are picked out with a central rib of white. A type with a comparatively high pedestal and a more spreading body was ornamented with bands of red and white on black, above which diagonal lines